Vol. III 2009 No. 4

БЪЛГАРСКИ МЕДИЦИНСКИ ЖУРНАЛ

БМЖ

СЪДЪРЖАНИЕ

CONTENTS

КЛИНИЧНА ПРАКТИКА – ТРУДНОСТИ В ДИАГНОСТИКАТА

СИНДРОМ НА FAHR ПРИ ПОСТОПЕРАТИВЕН ХИПОПАРАТИРЕОИДИЗЪМ – ОПИСАНИЕ НА СЛУЧАЙ

Ж. Бонева[1], П. Йовчевски[2], К. Цаловски[3], К. Костов[2], Я. Асьов[4], С. Йорданова[4], В. Евтимова[4] и В. Маринов[4]

[1]Отделение по ендокринология
[2]Отделение по неврология
[3]Отделение по нефрология – МИ МВР – София
[4]Медицински университет – София

FAHR'S SYNDROME IN SECONDARY HYPOPARATHYROIDISM DUE TO THYROID SURGERY – A CASE REPORT

Zh. Boneva[1] , P. Yovchevski[2], K. Tsalovski[3], K. Kostov[2], Y. Assyov[4], S. Yordanova[4], V. Evtimova[4] and V. Marinov[4]

[1]Department of Endocrinology
[2]Department of Nephrology
[3]Department of Neurology – Medical Institute – Ministry of Interior – Sofia
[4]Medical University – Sofia

Резюме: *Синдромът на Fahr е рядко невродегенеративно заболяване, характеризиращо се с двустранно симетрично отлагане на калций в базалните ганглии на мозъка. Той може да бъде причинен от над 30 етиологични фактора, между които някои инфекции, генетични заболявания и паратиреоидна дисфункция, и може да доведе до неврологични и психични отклонения. Представяме синдром на Fahr, изявен с деменция и когнитивни нарушения, при 66-годишна пациентка, оперирана по повод нодозна струма преди 10 години. Смятаме, че постоперативният хипопаратиреоидизъм е причината за развитието на синдрома на Fahr и че ранното лечение на хипопаратиреоидизма с калций и витамин D е можело да предотврати калцификатите и невропсихичните симптоми.*

Ключови думи: *синдром на Fahr, хипопаратиреоидизъм, калцификации на базалните ганглии*

Адрес за кореспонденция: *Д-р Живка Бонева, Отделение по ендокринология, Медицински институт МВР, бул. "Ген. Скобелев" № 79, 1606 София, тел. 9821351, факс: 9 81 45 94, e-mail: zhbonevaa@abv.bg*

Summary: *Fahr's syndrome is a rare neurodegenerative disease, characterized by bilateral symmetrical deposition of calcium in basal ganglia, thalamus, dentate nucleus and centrum semiovale. Fahr's syndrome can originate from more than 30 medical conditions including some infections, genetic disorders and parathyroid dysfunction, and may lead to neurological, psychiatric and cognitive abnormalities. We report a case of Fahr's syndrome that presented with dementia and cognitive impairment. The patient was a 66-year-old woman who had been operated for nodular goiter 10 years ago. We detected abnormalities in the calcium metabolism and believe that they are due to postoperative hypoparathyroidism which led to Fahr's syndrome. Early treatment of hypoparathyroidism with supplementation of calcium and vitamin D can prevent calcifications and eventual neurophysiological disorders.*

Key words: *Fahr's syndrome, hypoparathyroidism, basal ganglia calcifications*

Address for correspondence: *Jivka Boneva, M. D., Department of Endocrinology, Medical Institute – Ministry of Interior, 79, Gen. Stoletov Blvd., Bg – 1606 Sofia, tel. +359 2 9821351, fax: +359 2 981 45 94, e-mail: zhbonevaa@abv.bg*

МЕДИЦИНСКИ УНИВЕРСИТЕТ – СОФИЯ

Медицински преглед

ЕНДОКРИННИ ЗАБОЛЯВАНИЯ

1'09

Год. XXXVIII

СЪДЪРЖАНИЕ

МЕДИЦИНСКИ ПРЕГЛЕД

ЕНДОКРИННИ ЗАБОЛЯВАНИЯ 1/2009

ISSN 0324-1475 УДК 616.4

Излиза 2 пъти годишно за 2009 г.

Уредник *М. Димитрова*
Стилова редакция *В. Цъклева*
Терминологичен контрол *д-р Б. Станчева*
Корекция *Д. Танчева*
Набор и страниране *Й. Везирова*
Печат: *ЕТ „Таурус – Костадин Тонкаров"*
Подписана за печат на 25.06.2009 г.
Печатни коли 2.5, формат 60 x 90/16
Централна медицинска библиотека
1431 София, ул. "Св. Г. Софийски" № 1
✆ 952 05 16 🖷 851 82 65, E-mail: tzoneva@mail.bg

КАЗУИСТИКА

ИНЦИДЕНТНО ОТКРИТ ФЕОХРОМОЦИТОМ ПРИ ПАЦИЕНТКА, ЛЕКУВАНА ДВЕ ГОДИНИ ПО ПОВОД ЗАХАРЕН ДИАБЕТ – ОПИСАНИЕ НА СЛУЧАЙ

Ж. Бонева[1], П. Йовчевски[2], Н. Смилов[3], В. Стефанов[4], И. Лозев[5], В. Паскалев[6], Н. Колева[6], Я. Асьов[7], В. Евтимова[7], В. Маринов[7] и С. Йорданова[7]

[1]*Отделение по ендокринология*

[2]*Отделение по нефрология*

[3]*Отделение по урология*

[4]*Отделение по анестезиология и реанимация*

[5]*Клиника по хирургия*

[6]*Отделение по патоанатомия*

МИ МВР – София

[7]*Медицински университет – София*

Резюме. Представяме случай на инцидентно открит феохромоцитом при 50-годишна жена, лекувана от две години по повод захарен диабет. Поради установена при физикалния преглед палпаторна болка в дясната коремна половина беше осъществена ехография и впоследствие компютърна томография, диагностицирали десностранен надбъбречен тумор с размери 5.5/4.5 cm. Бяха установени многократно увеличени нива на метанефрините в 24-часова урина. След преоперативна адренергична блокада при пациентката беше осъществена десностранна адреналектомия. Постоперативно се установи подобрение на захарния диабет и артериалната хипертония.

Ключови думи: *инцидентно открит феохромоцитом, захарен диабет*

Zh. Boneva, P. Yovchevski, N. Smilov, V. Stefanov, I. Lozev, V. Paskalev, N. Koleva, Y. Assyov, V. Evtimova, V. Marinov and S. Jordanova. PHEOCHROMOCYTOMA AND DIABETES MELLITUS – A CASE REPORT

Summary. We present a case of an incidentally discovered pheochromocytoma in a 50-year-old woman, who had been diagnosed with type 2 diabetes mellitus 2 years ago. Due to a palpatory pain in the right abdominal half, we administered ultrasound and subsequently a computed tomography scan. CT of the abdomen revealed a 5.5/4.5 cm right adrenal tumor. In the 24-hour urine collection, metanephrines were highly elevated. After achieving appropriate adrenergic blockade, the patient underwent right adrenalectomy. Pheochro-

mocytoma was confirmed on review of post-operative histology sections. The patient's hypertension and hyperglycaemia improved after surgery.

***Key words**: incidentally discovered pheochromocytoma, diabetes mellitus*

Увод

Феохромоцитомът е рядък катехоламин-секретиращ тумор, произхождащ от хромафинните клетки, който е причина за 0.1-0.9% от случаите на артериална хипертония. Добре известните класически признаци на феохромоцитомите – главоболие, палпитации, изпотяване, тревожност при пациенти с пароксизмална хипертония, често липсват или не са добре подчертани, поради което диагнозата се пропуска или закъснява. Приема се, че около 10% от феохромоцитомите се откриват инцидентно, но редица проучвания съобщават за честота над 50%. Данните от ретроспективно проучване на Mayo Clinic показват, че диагнозата феохромоцитом е направена при аутопсия при 45% от пациентите с тази диагноза [2]. Около 5-8% от надбъбречните инциденталоми са феохромоцитоми. Ето защо изследването на фракционираните метанефрини и катехоламините в 24-часова урина се препоръчва при всички инцидентно открити адренални маси, като изследването носи висока специфичност и сензитивност за диагностициране на феохромоцитома (91-98% за двете). Известно е, че около 90% от феохромоцитомите са бенигнени и хирургичното им отстраняване представлява дефинитивно лечение [8,11,12,15]. Правилната преоперативна диагноза е критично важна за избора на хирургичен подход, тъй като е известно, че физическият контакт с тези тумори може да предизвика тежка ритъмна патология и малигнена хипертония. Смъртността при интраоперативно диагностицираните феохромоцитоми възлиза на около 50 процента [1, 7, 25, 29].

Нарушение в глюкозния толеранс се наблюдава при 25-75% от пациентите с феохромоцитом, а при 10% от тях се развива манифестен захарен диабет [4, 9]. Механизмът на действието му е свързан с потискане на инсулиновата секреция от катехоламините посредством стимулация на алфа-2 адренергичните рецептори, независимо че съществува и стимулация на бета-адренергичните рецептори, водеща до известно стимулиране на инсулиновата секреция. Редица автори съобщават, че катехоламиновият ексцес при феохромоцитом може да индуцира и инсулинова резистентност именно посредством стимулиране на бета-адренергичните рецепто-

МЕДИЦИНСКИ ПРЕГЛЕД

No 4
2009
Vol. XL

Мед. преглед
Med. pregled

СЪДЪРЖАНИЕ

АНГИОТЕНЗИН-РЕЦЕПТОРНАТА БЛОКАДА – РЕНОПРЕВЕНЦИЯ ИЛИ РЕНОПРОТЕКЦИЯ (ЧЕТИРИГОДИШНО ПРОСПЕКТИВНО ПРОУЧВАНЕ)

Пл. Йовчевски[1], Ж. Бонева[2], В. Маринов[2], Ст. Йорданова[2] и В. Евтимова[2]

[1]Отделение по нефрология, Медицински институт на МВР – София

[2]Отделение по ендокринология, Медицински институт на МВР – София

ANGIOTENSIN-RECEPTOR BLOCKADE – RENOPREVENTION OR RENOPROTECTION: A FOUR-YEAR PROSPECTIVE STUDY

Pl. Yovchevski[1], Zh. Boneva[2], V. Marinov[2], St. Yordanova[2] and V. Evtimova[2]

[1]Department of Nephrology, Medical Institute – Ministry of Interior – Sofia

[2]Department of Endocrinology, Medical Institute – Ministry of Interior – Sofia

Резюме:

Доказано е, че блокирането на ренин-ангиотензиновата система редуцира протеинурията и забавя прогресията на бъбречното увреждане при диабетици. Ние си поставихме за цел да установим доколко ранното, преди изявата на микроалбуминурия (МАУ), приложение на ангиотензин-рецепторни блокери (АРБ) предотвратява развитието на диабетна нефропатия и съхранява бъбречната функция. 22 инсулинозависими диабетици с артериална хипертония, но без изявена микроалбуминурия бяха включени в четиригодишно, двойносляпо, плацебо-контролирано проучване за превенция на диабетна нефропатия. След рандомизацията 12 от тях получаваха Candesartan 16 mg на ден, а 10 болни – плацебо. По време на проследяването един от пациентите, от групата на лечение с Candesartan, разви макропротеинурия. При останалите болни на Candesartan албуминурията се увеличи от 9,9 ± 4,7 mg/l до 13,8 ± 9,1 mg/l, 1 болен изяви МАУ. В групата на плацебо албуминурията се увеличи от 8,2 ± 3,2 mg/l до 10,4 ± 8,7 mg/l, откри се също 1 болен с МАУ. Не се установи статистически значима разлика в промяната на албуминурията в двете групи. Креатининовият клирънс при болните на терапия с Candesartan се запази за четиригодишния период на проследяване – изходен 119,9 ± 24,1 ml/min на 1,73 m^2, краен – 117,1 ± 22,8 ml/min на 1,73 m^2. В групата на плацебо креатининовият клирънс спадна от 144,2 ± 25,6 ml/min на 119,8±19,7 ml/min на 1,73 m^2 ($p < 0,05$). Блокадата на ренин-ангиотензиновата система с АРБ има ренопротективна роля – запазва бъбречната функция, оценена чрез величината на гломерулната филтрация. Същевременно приложението на Candesartan не предпазва от развитието на микроалбуминурия при изследваните от нас диабетици на инсулинова терапия. За да се постигне ренопревенция, е необходима намеса в по-ранните патогенетични стадии на увреждането – перфектен метаболитен контрол и въздействие върху началните патобиохимични механизми, по които то настъпва.

Ключови думи:

ренин-ангиотензинова система, ангиотензин-рецепторни блокери, диабетна нефропатия, микроалбуминурия, Candesartan

Адрес за кореспонденция:

Д-р Пламен Йовчевски, Отделение по нефрология, Медицински институт на МВР, бул. „Скобелев" № 79, 1606 София

Summary:

It has been shown that blockade of the renin-angiotensin system reduces proteinuria and slows down the progression of renal impairment in diabetics. The purpose of our study was to find out if early, before onset of microalbuminuria, treatment with angiotensin-receptor blockade prevents the development of diabetic nephropathy and protects renal function. 22 insulin-dependent diabetics with arterial hypertension, but without microalbuminuria were enrolled in a prospective, double-blinded, placebo-controlled four-year study for prevention of

diabetic nephropathy. After randomization 12 of them were treated with candesartan – 16 mg/day, the other 10 received placebo. During the study period, one patient in the candesartan group developed macroproteinuria. In the rest of the candesartan group, albuminuria rose from 9,9 ± 4,7 mg/l to 13,8 ± 9,1 mg/l, one patient had microalbuminuria. In the placebo group, albuminuria rose from 8,2 ± 3,2 mg/l to 10,4 ± 8,7 mg/l, one patient was with microalbuminuria also. The study found no statistically significant difference between both groups. Creatinine clearance remained unchanged for the four year period: in the candesartan group – baseline value 119,9 ± 24,1 ml/min/1,73 m^2; end value – 117,1 ± 22,8 ml/min/1,73 m^2. In the placebo group, creatinine clearance decreased from 144,2 ± 25,6 ml/min/1,73 m^2 to 119,8 ± 19,7 ml/min/1,73 m^2 ($p < 0,05$). Inhibition of the renin angiotensin system with candesartan plays a renoprotective role – it preserves renal function assessed by creatinine clearance, while the treatment with candesartan cannot prevent the development of microalbuminuria in the studied insulin-dependent diabetics. For renoprevention, it is necessary to treat earliest stage of disease: by intense metabolic control and influence on the initial pathobiochemical processes.

Key words: renin-angiotensin system, angiotensin receptor blockers, diabetic nephropathy, microalbuminuria, candesartan

Address for correspondence: *Plamen Yovchevski, M. D., Department of Nephrology, Medical Institute – Ministry of Interior, 79, Skobelev Blvd., Bg – 1606 Sofia*

Увод

Диабетна нефропатия се развива при 30-50% от всички болни със захарен диабет (ЗД) [1] и през последните десетилетия както в европейските регистри (ERA-EDTA Registry [11]), така и в регистрите на САЩ (United States Renal Data System – USRDS [21]) тя се превърна в основна причина за развитието на хронична бъбречна недостатъчност, нуждаеща се от органозаместващо лечение. Микроалбуминурията (МАУ) се наложи не само като пръв доловим белег на бъбречното увреждане при захарен диабет [19], но и като независим сърдечно-съдов рисков фактор [13]. Всяка година МАУ развиват от 2 до 5% от диабетиците [2]. Тя, заедно с гломерулната филтрация (ГФ) са основните показатели, определящи състоянието на бъбреците при диабетици и даващи възможност да се прогнозира бъдещото развитие на бъбречна недостатъчност при тях [6].

Въпреки доказаните ползи от блокадата на ангиотензиновите рецептори чрез АРБ, засега не е постигнато спиране на развитието на бъбречното увреждане при диабетици. Поради това ние си поставихме за **цели** на настоящото проучване:

1. Да оценим има ли ренопротективен ефект от продължителното приложение на Candesartan.

2. Да отговорим на въпроса: Води ли приложението на Candesartan до ренопревенция по отношение на развитието на диабетна нефропатия.

Материал и методи

В проучването бяха включени 24 диабетици, като от тях 22 го завършиха – 14 мъже и 8 жени, със захарен диабет (ЗД) тип 1 – 14 болни, и с тип 2 – 8 болни. Всички болни бяха на инсулинолечение, но без изявена микроалбуминурия (< 20 mg/l) и с нормална ГФ при включването. Участващите в проучването болни бяха с установена артериална хипертония (стойности на налягането > 135 mm Hg систолно и/или > 85 mm Hg диастолно). Изключващ критерий беше приемът на инхибитори на ангиотензин-конвертиращия ензим (ACE инхибитори) или сартани в последния месец преди началото му. Изключващи критерии бяха също наличието на недиабетно бъбречно страдание или изходно намалена гломерулна филтрация под 80 ml/min на 1,73 m^2.

Проучването беше проведено като двойносляпо, плацебо-контролирано с ангиотензин-рецепторен блокер – Candesartan 16 mg на ден, срещу плацебо. В случаен ред пациентите са лекувани с Candesartan 16 mg веднъж дневно или плацебо-таблетки, добавени към предишната антихипертензивна терапия, която не включва средства, блокиращи ренин-ангиотензновата система. През последния месец преди включването пациентите са приемали диуретици, централнодействащи медикаменти, α-блокери или β-блокери. Цел на антихипертензивната терапия беше постигане на стойности ≤ 130/80 mm Hg. Артериалното налягане е следено като офисно налягане, при прегледите. След постигане на

Съвременна медицина

Modern medicine

брой
5-6/2009

том
60

Съюз на българските медицински дружества

брой
5-6/2009
том
60

Съвременна медицина

Орган на Съюза на българските медицински дружества www.medunion-bg.org

Адрес на редакцията:
София 1431
ул. „Акад. Иван Гешов" №15
Национален център по опазване на общественото здраве
Съюз на българските медицински дружества
ет. 2, стая 52
тел.: 954 11 56, 80 56 410

Списание Съвременна медицина излиза в 6 книжки годишно.
Включено е в международния регистър на периодичните издания – ISSN 0562-7192 и в Българска медицинска литература при ЦМБ – МУ, София

Съюз на българските медицински дружества

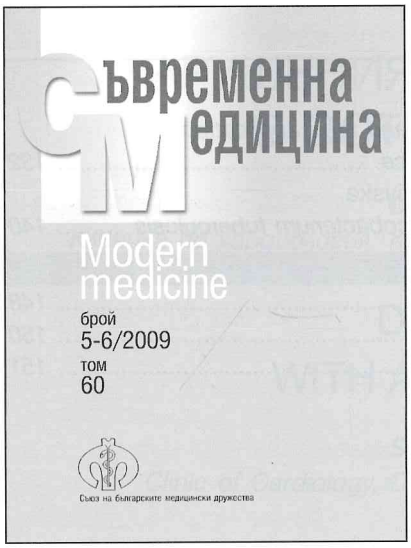
СЪДЪРЖАНИЕ

СЪДЪРЖАНИЕ

СЪВРЕМЕННА МЕДИЦИНА брой 5-6/2009, том 60

Редакционна обработка: Емилия Николова
Технически секретар: Астхиг Постаджиян
Предпечат: Румяна Такова
Формат: 60x84/8
Печат: Омега М
Тираж: 250 броя
ISSN 0562-7192

Съюз на българските медицински дружества

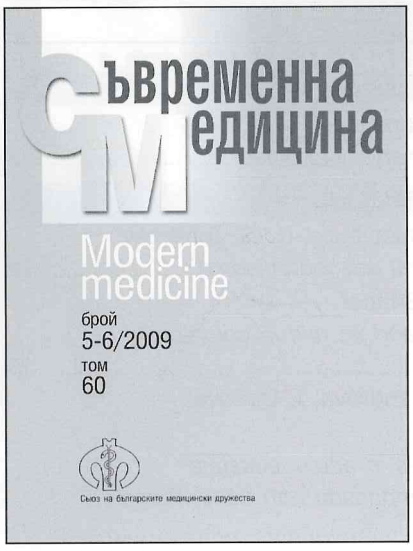


Editorial Address:
Union of Bulgarian Medical Societies
National Center of Public Health
15, Akad. Ivan Geshov blvd.
2 floor, room 52
Ph.: +359 2 954 11 56, 80 56 410
1431 Sofia
Bulgaria

Union of Bulgarian Medical Societies

Съюз на българските медицински дружества

CONTENTS



CONTENTS

ХИПОРЕНИНЕМИЧЕН ХИПОАЛДОСТЕРОНИЗЪМ ПРИ ПАЦИЕНТКА С ТИП 2 ЗАХАРЕН ДИАБЕТ – ОПИСАНИЕ НА СЛУЧАЙ

Ж. А. Бонева[1], П. Х. Йовчевски[2], Я. С. Асьов[3], В. П. Маринов[3], В. Я. Евтимова[3], С. Й. Йорданова[3]

[1] Отделение по ендокринология, [2] Отделение по нефрология при МИ МВР – София, [3] Медицински университет – София

Резюме:

Синдромът на хипоренинемичен хипоалдостеронизъм се среща при хетерогенна група заболявания с бъбречно засягане. Една от най-честите причини е нефропатията при захарен диабет. Представяме случай на пациентка с тип 2 захарен диабет и хиперкалиемия, несъответстваща на степента на придружаващата начална хронична бъбречна недостатъчност. Хормоналните изследвания показаха ниски базални нива на ренина и алдостерона и субнормален отговор спрямо ортостаза, при липса на други причини за хиперкалиемия. Диагностицирането на заболяването беше много важно, тъй като лечението с флудрокортизон доведе до нормализиране на калиемията и редукция на риска от ритъмни нарушения, свързани с хиперкалиемията.

Ключови думи:

Хипоренинемичен хипоалдостеронизъм, захарен диабет, хиперкалиемия

HYPORENINEMIC HYPOALDOSTERONISM IN A PATIENT WITH TYPE 2 DIABETES MELLITUS – A CASE REPORT

Z. A. Boneva[1], P. H. Yovchevski[2], Y. S. Assyov[3], V. P. Marinov[3], V. Y. Evtimova[3], S. J. Jordanova[3]

[1] Department of Endocrinology, [2] Department of Nephrology, Medical Institute – Ministry of Interior, [3] Medical University – Sofia

Summary:

The syndrome of hyporeninemic hypoaldosteronism can be encountered in a heterogeneous group of diseases with renal involvement. One of the most common causes is nephropathy in diabetes mellitus. We present a case of a patient with type 2 diabetes mellitus and hyperkalemia, not corresponding to the degree of the accompanying initial renal insufficiency. Hormonal tests showed low basal levels of renin and aldosterone and a subnormal response to orthostasis with a lack of other causes for hyperkalemia. The diagnosis of the disease was crucial because the treatment with fludrocortisone has led to normalization of hyperkalemia and a reduction of the risk for hyperkalemia-related rhythm disorders.

Key words:

Hyporeninemic hypoaldosteronism, diabetes mellitus, hyperkalemia

ВЪВЕДЕНИЕ

Синдромът на хипоренинемичен хипоалдостеронизъм (ХХ) се среща при хетерогенна група заболявания с бъбречно засягане, като в 70% от случаите е налице лека до умерена бъбречна недостатъчност. Характеризира се с хиперкалиемия и в половината от случаите с хиперхлоремична метаболитна ацидоза, поради което се обозначава често като тип IV бъбречна тубулна ацидоза [1,3,5,19]. Последната е вследствие на нарушена бъбречна амониогенеза, намален секреторен капацитет на дисталните тубули за водородни йони и леко понижена способност за реабсорбция на бикарбонати в проксималните тубули [2,6,30]. По-чес-

МЕДИЦИНСКИ ПРЕГЛЕД
MEDICAL REVIEW

vol. XLVII • 2011 • № 2

Мед. преглед
Med. pregled

СЪДЪРЖАНИЕ

ОБЗОРИ

ОРИГИНАЛНИ СТАТИИ

КАЗУИСТИКА

В ПОМОЩ НА ПРАКТИКАТА

ПОЛИУРИЯ В РЕЗУЛТАТ НА ТЕЖКА ХИПЕРКАЛЦИЕМИЯ ПРИ ПАЦИЕНТ СЪС ЗАХАРЕН ДИАБЕТ

В. Евтимова[1], Я. Асьов[1], Д. Дарданов[2], Ж. Бонева[3], Пл. Йовчевски[4], Н. Колева[5], В. Маринов[1] и С. Йорданова[1]

[1]Медицински университет – София
[2]Хирургична клиника, [3]Отделение по ендокринология, [4]Отделение по нефрология, [5]Отделение по патоанатомия,
Медицински институт – МВР – София

POLYURIA IN A PATIENT WITH DIABETES MELLITUS HIDES AN ACCOMPANYING HIGH-GRADE HYPERCALCEMIA

V. Evtimova[1], Y. Asyov[1], D. Dardanov[2], Zh. Boneva[3], Pl. Yovchevski[4], N. Koleva[5], V. Marinov[1] and S. Yordanova[1]

[1]Medical University – Sofia
[2]Clinic of Surgery, [3]Department of Endocrinology, [4]Department of Nephrology, [5]Department of Pathology,
Medical Institute – Ministry of Interior – Sofia

Резюме:

Полиурията е сериозен симптом, който не бива да бъде подценяван както поради тежестта в протичането, така и поради многообразните подлежащи патофизиологични промени. Етиологичната диагноза понякога е много трудна и зависи от асоциацията с други симптоми. В диференциално-диагностичен план влизат редица ендокринопатии, диселектролитемии, прием на медикаменти, бъбречни, психични и други заболявания. Представяме клиничен случай на пациент със захарен диабет и изразена полиурия, която дълго време е била приемана като симптом на диабета. Въпреки провежданото инсулинолечение на диабета за двегодишен период беше настъпило задълбочаване на тежестта на полиурията до степен на тежка дехидратация, което наложи хоспитализация. Изследванията разкриха тежка хиперкалциемия с промени в електрокардиограмата. При пациента бяха установени хормонални, ехографски и сцинтиграфски данни за паращитовиден аденом и първичен хиперпаратиреоидизъм. Оперативното отстраняване на паращитовидния аденом доведе до овладяване на екстремната хиперкалциемия, с което се намали рискът от ритъмни и други нарушения, свързани с това състояние. Представянето на случая има за цел да насочи вниманието на клиницистите върху многообразието от заболявания, които могат да причинят един и същи симптом – полиурия. Правилната диагноза трябва да бъде активно и упорито търсена, защото от нея зависи и добрият изход на заболяването.

Ключови думи: полиурия, хиперкалциемия, първичен хиперпаратиреоидизъм, захарен диабет

Адрес за кореспонденция: *Д-р Веселина Евтимова, Отделение по ендокринология, Медицински институт – МВР – София, бул. "Ген. Скобелев" № 79, 1606 София, тел. 02 9821351, e-mail: v_ess@abv.bg*

Summary:

Polyuria is a serious symptom, which should never be underestimated due to its clinical severity and the multiple underlying pathophysiological processes. The diagnosis of the current disease is sometimes very difficult and depends on its association with other symptoms. From a differential-diagnostic point of view, multiple conditions might be discussed such as endocrinologic disorders, electrolyte balance disorders, drugs, renal, psychiatric or other diseases. We

present a clinical case of a patient with diabetes mellitus and manifested polyuria, which has for a long time been considered a symptom of the diabetes. Despite the insulin treatment, for a two-year period a worsening of the polyuria to a degree of a heavy dehydration was observed in the patient which led to hospitalization. Biochemistry showed a severe hypercalcemia with ECG manifestations. Hormonal, ultrasound and scintigraphic evidence of a parathyroid adenoma and a primary hyperparathyroidism were also observed in the patient. The surgical removal of the parathyroid adenoma has led to management of the extreme hypercalcemia which has lowered the risk of rhythm and other disorders related to that condition. The presentation of this case has the purpose of focusing the attention of physicians on the plethora of diseases that may cause the same symptom, polyuria, and on the fact that the outcome of the disease depends on active and persistent search for correct diagnosis.

Key words: polyuria, hypercalcemia, primary hyperparathyroidism, diabetes mellitus

Address for correspondence: *Veselina Evtimova, M. D., Department of Endocrinology, Medical Institute – Ministry of Interior, 79, "Gen. Scobelev" Blvd., Bg – 1606 Sofia, tel. +359 2 9821351, e-mail: v_ess@abv.bg*

Въведение

Полиурията е сериозен симптом както поради тежестта на протичането си, така и поради многообразните подлежащи патофизиологични промени, които я причиняват, и поради сериозните последици, до които може да доведе. Клиницистите дефинират полиурията като нарастване на дневния обем урина (над 3 l, или 2 ml/min), което обикновено се съпътства от повишена честота на уриниране [8, 18]. Въпреки че полиурията води до полидипсия, тя може да бъде и резултат на полидипсията. Тежката полиурия нарушава качеството на живот и може да предизвика редица клинични усложнения – хиповолемия, бърза промяна в електролитните нива, дилатация на бъбречната събирателна система [8, 18]. Диагнозата на полиурията зависи в голяма степен от асоциацията ѝ с други симптоми. Най-честите случаи, водещи до изява на клинична полиурия, са:

1. Ендокринопатии – захарен диабет, безвкусен диабет, болест на Кушинг, болест на Кон, феохромоцитом, болест на Адисон; хиперпаратиреоидизъм.

2. Бъбречни заболявания – хронични бъбречни страдания, синдром на Фанкони, нефрогенен безвкусен диабет и др.

3. Ятрогенни причини – диуретична терапия, злоупотреба с алкохол, медикаменти – кофеин, литиева интоксикация, теофилин, глюкокортикоиди, хипервитаминоза D, интоксикация със сърдечни гликозиди и др.

4. Метаболитни причини – хиперкалциемия (хиперпаратиреоидизъм, множествени костни метастази, остеопороза); калиева загуба.

5. Психогенни причини – психогенна полидипсия.

6. Други – сърповидноклетъчна анемия, камерна пароксизмална тахикардия и др. [6].

Няма единна класификация на полиурията, но някои автори я разделят на: А. Водна диуреза (абнормно отделяне на вода) най-често поради ексцесивен прием на течности, психогенна полидипсия, дефект в центъра на жаждата, хиперангиотензинемия, безвкусен диабет. Б. Солева диуреза, която от своя страна се дели на електролитна и неелектролитна. Електролитната може да се предизвика от претоварване с натрий или аниони (хлоридни, бикарбонатни, кетоаниони) и др. Причини за неелектролитно индуцирана полиурия са: глюкозата (екзогенен внос, диабетна кетоацидоза, хиперосмоларни състояния), уреята (обременяване с протеини и аминокиселини, хиперкатаболни състояния, пострабдомиолиза, резорбция на масивен хематом или кървене от гастроинтестиналния тракт (ГИТ), първата фаза на остра тубулна некроза и др.), прием на манитол, глицерол. В. Смесена диуреза [11].

Описание на клиничния случай

Пациент (И. К.) на 37 години е хоспитализиран по спешност с оплаквания от силна отпадналост, изразена полиурия, полидипсия, гадене и сънливост, по повод на което са установени повишени стойности на кръвната захар – 23,4 mmol/l и кетотела в урината. Давността на захарния диабет е двегодишна след прекаран остър некротичен панкреатит, като е започнат интензифициран инсулинов режим. Тогава диабе-

РЯДКА ЛОКАЛИЗАЦИЯ НА КАРЦИНОИД И ЗНАЧЕНИЕТО НА ХРОМОГРАНИН А

А. Русева[1], Р. Лазарова[1], И. Костурков[1], В. Яначкова[2], С. Йорданова[2] и Д. Николовска[1]

[1]Клиника по гастроентерология, МИ, МВР – София

[2]Отделение по ендокринология, МИ, МВР – София

RARE LOCALIZATION OF CARCINOID AND THE MEANING OF CHROMOGRANIN A

A. Ruseva[1], R. Lazarova[1], I. Kosturkov[1], V. Yanachkova[2], S. Yordanova[2] and D. Nikolovska[1]

[1]Clinic of Gastroenterology, Medical Institute, Ministry of Interior – Sofia

[2]Department of Endocrinology, Medical Institute, Ministry of Interior – Sofia

Резюме:

Карциноидните тумори са най-често срещаните невроендокринни тумори (НЕТ) на храносмилателната система. Те са редки, бавно растящи, често протичат незабелязано, докато се появят метастази или карциноиден синдром. За карциноидите могат да бъдат присъщи и общите прояви на злокачествените тумори – коремна болка и отслабване на тегло. Диагнозата често се поставя трудно, особено при по-редките локализации. Терапията и прогнозата се определят от локализацията на първичния тумор и наличието и локализацията на метастази към момента на поставяне на диагнозата. Чувствителен и специфичен маркер за оценка на карциноидите е хромогранин А.

Ключови думи: карциноид, хромогранин А, невроендокринни тумори, radix mesenterii

Адрес за кореспонденция: *Д-р А. Русева, Клиника по гастроентерология, МИ, МВР, бул. "Скобелев" № 79, 1606 София*

Summary:

Carcinoid tumors are the most common neuroendocrine tumors of the gastrointestinal tract. Carcinoids are rare and slowly growing. They remain unnoticed until the metastasis or the carcinoid syndrome appears. The last one is peculiar especially for carcinoids originating from the middle part of the digestive system. Chromogranin A is a specific marker to estimate carcinoid volume and progression.

Key words: carcinoid, chromogranin A, neuroendocrine tumors, radix mesenterii

Address for correspondence: *A. Ruseva, M. D., Clinic of Gastroenterology, Medical Institute, Ministry of Interior, 79, Skobelev Blvd., Bg – 1606 Sofia*

Представяме случай на пациентка с карциноид с рядка локализация и значително повишена концентрация на хромогранин А в плазмата. В достъпната литература няма описан карциноид с такава локализация.

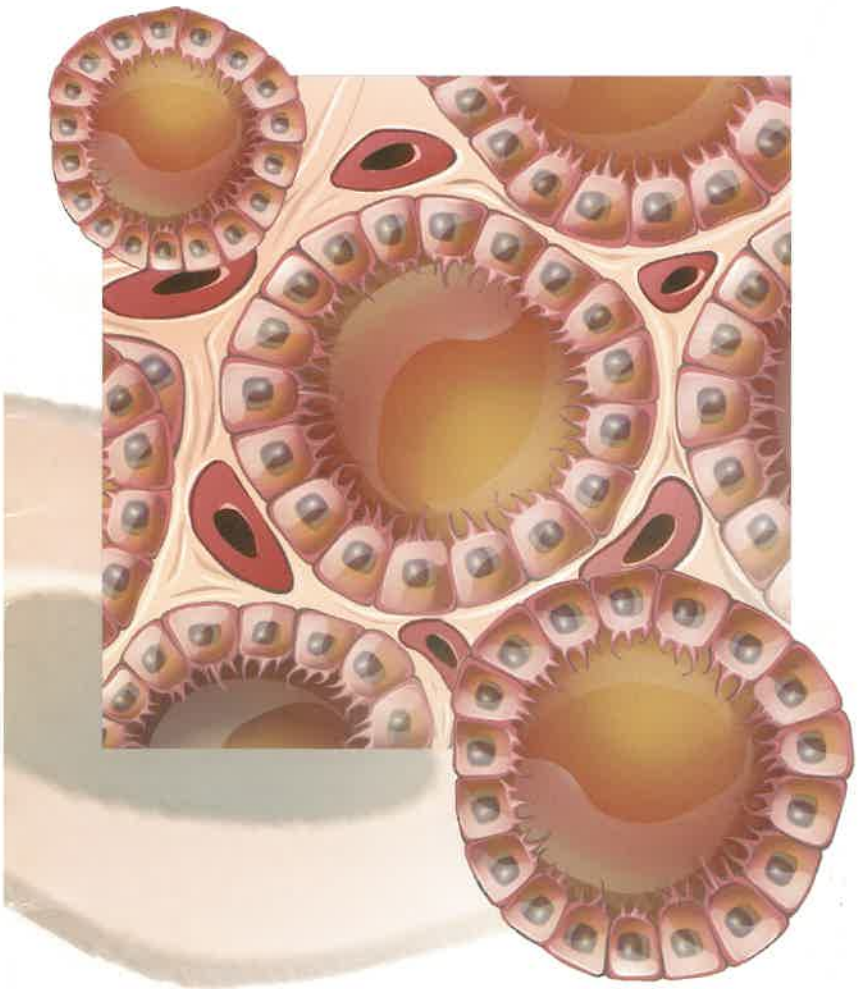
Описание на случая

Касае се за жена на 61 години. Оплакванията ù започват през 2005 г., когато след всеки прием на храна получава болки в корема – около пъпа. През 2008 г. тези оплаквания прогресират и след всяко хранене болките се разпространяват към долната половина на корема, последвани от изхождане на кашави изпражнения и обилно изпотяване. За 1 година отслабва с около 5 kg. През 2009 г. по време на престоя си в КГЕ на МИ – МВР, ехографски са установени огнищни изменения в черния дроб (фиг. 1 и 2). Чрез КАТ на коремни органи се доказва туморна формация в коремната кухина с инфилтриране на тънки черва и метастази в черния дроб. От лабораторните резултати – микроцитна хипохромна анемия и ниски стойности на серумния албумин. Като предоперативна диагноза се обсъдиха карцином или лимфом на тънкото черво. При оперативното лечение се намира туморна формация, произлизаща от радикс мезентерии 5/3 cm, с инфилтрация на тънкото черво и метастаза в 1 локорегионален лимфен възел. Хистологично се установява високодиференциран невроендокринен тумор. Имунохистохимичното изследване на биопсичния материал показва туморни клетки с позитивна експресия на хромогранин А, синаптофизин и невроспецифична енолаза. Ki67 индекс: под 2%. Изследван е хромогранин А в серума – 503,511 ng/ml, при норма до 100 ng/ml. Започната е терапия със соматостатинов аналог с пролонгирано действие и

НАУКА

ендокринология

4 2014



ГОДИНА VIII
ISSN 1313-0897

НАУКА
ендокринология

СЪДЪРЖАНИЕ

БРОЙ 4 (41), 2014; Година VIII

Илюстрация на корицата:
Структура на щитовидна жлеза

ИЗДАТЕЛ
АРБИЛИС
Сертификат по ISO 9001:2008, No: 368382

София 1000, ПК 602
тел.: 02/ 950 17 17; факс: 02/ 950 17 16
e-mail: nauka.endokrinologia@arbilis.com
www.arbilis.com

МЕНИДЖЪР
Иван Батаклиев

РЕКЛАМА
Любомир Бранков

ВРЪЗКИ С ОБЩЕСТВЕНОСТТА
Елисавета Станчева

КОРЕКТОР
д-р Мая Живкова

ДИЗАЙН И ПРЕДПЕЧАТ
Арбилис ООД

ПЕЧАТ
За „Арбилис" ООД – Полиграфически комбинат „Димитър Благоев" – ООД

Възможности на еластографията в диагностиката на възлите на щитовидната жлеза

Доц. Живка Бонева[1], д-р Явор Асьов[2], д-р Стелла Йорданова[1], д-р Веселина Яначкова[1]

[1]*Отделение по ендокринология, МИ–МВР, София*

[2]*Клиника по ендокринология, УМБАЛ „Александровска“, София*

Въведение

Физикалният метод, който открива разликата в плътността и еластичността между нормалните тъкани и възлестите им образувания, а също между доброкачествените и злокачествените такива, е палпацията. В исторически аспект данни за приложението ѝ има още в египетските папируси 1600 години пр. Хр., описани в трудовете на американския египтолог Edwin Smith. По-късно Хипократ подробно описва разликите в плътността, еластичността и хомогенността на тъканите. И днес палпацията е неотменима част от физикалния преглед на пациента. Мануалната палпация обаче има редица недостатъци:

- Субективна е и зависи от опита на изследващия;
- Не може да се документира;
- Не може да се възпроизвежда и сравнява във времето;
- Не може да долови малките и дълбоко разположените лезии;
- Не разпознава тъканните структури[4, 9, 11, 24].

Възлите на щитовидната жлеза са сред най-честите болести на този орган. Едва 4–7% от тях могат да бъдат установени с палпация. Развитието на образните методи и специално на ехографията даде възможност диагнозата на тези възли да бъде съизмерима с реалното им разпространение, докладвано в аутопсионните студии – над 50% от популацията. Диференциалната диагноза между малигнените и бенигнените нодули обаче все още е предизвикателство за клиницистите. Международните ръководства за поведение при тиреоидни нодули поставят ехографията в центъра на диагностичния процес. В диференциалната диагноза най-информативна е тънкоиглената аспирационна биопсия (ТАБ) под ехографски контрол, затова тя понастоящем е индицирана при възли над 1 cm или при такива под 1 cm, но с ехографски белези, насочващи към малигненост (микрокалцификати; неравномерно и прекъснато хало; неравни очертания; по-голяма височина, отколкото ширина; предимно интранодуларен кръвоток). Независимо че ехографските белези за малигненост са с доказано висока чувствителност, специфичност, негативна и позитивна предиктивна стойност, е факт, че тези показатели значително варират в различните проучвания[4, 5, 7, 15, 16, 19, 22].

В последните години в литературата все повече набира скорост дебатът за отношението цена/ефективност на прилаганите ТАБ. Той произтича от високата цена на изследването и от факта, че тиреоидният карцином се открива в около 5% от щитовидните възли, а 70% от биопсираните нодули са бенигнени. Само в САЩ се правят между 250 000 и 300 000 ТАБ годишно, а себестойността на едно изследване там се оценява на над 1000 долара. Същевременно 20–30% от осъществените ТАБ са интермедиерни или недиагностични и изискват допълнителни тестове. Освен това ТАБ е инвазивно изследване, което не винаги се приема от пациента. Не на последно място, тази процедура изисква висока квалификация на ехографиста и патоанатома, които я осъществяват. Клиницистите се нуждаят от метод, който да допълни данните от конвенционалното ултразвуково изследване и да прецизира индикациите за ТАБ и за оперативна интервенция на тиреоидните нодули[4, 9, 31, 32, 34, 40].

Приложение и същност на еластографията

Наричат еластосонографията (ЕСГ) „електронна палпация“, или „палпация с трансдюсера“. Тя е „млад“ метод – едва от 1990 г., когато е въведе-

СЪВРЕМЕННИ МЕДИЦИНСКИ ПРОБЛЕМИ

ИЗДАНИЕ НА МЕДИЦИНСКИ ИНСТИТУТ НА МВР
РЕПУБЛИКА БЪЛГАРИЯ

JOURNAL OF CONTEMPORARY MEDICAL PROBLEMS

БРОЙ 2/2014

ИЗДАТЕЛСТВО •ЛИЦЕ ПРЕС•

СЪДЪРЖАНИЕ

CONTENTS

ХИПОРЕНИНЕМИЧЕН ХИПОАЛДОСТЕРОНИЗЪМ ПРИ ПАЦИЕНТКА С ТИП 2 ЗАХАРЕН ДИАБЕТ – ОБЗОР НА ЛИТЕРАТУРНИТЕ ДАННИ И ОПИСАНИЕ НА СЛУЧАЙ

Ж. Бонева[1], Я. Асьов[2], В. Яначкова[1], С. Йорданова[1], А. Русева[3], Р. Лазарова[3], С. Бежанова[3], Д. Николовска[3], П. Йовчевски[4], Е. Пенева[4], Н. Лазов[4], М. Христозова[5], И. Костурков[3]

[1] Отделение по ендокринология – МИ МВР, София; [2] Клиника по ендокринология – УМБАЛ „Александровска"; [3]Клиника по гастроентерология – МИ МВР, София; [4]Клиника по нефрология – МИ МВР, София; [5]Медицински университет – София

HYPORENINEMIC HYPOALDOSTERONISM IN A PATIENT WITH TYPE 2 DIABETES MELLITUS – REVIEW OF THE LITERATURE AND A CASE REPORT

Zh. Boneva[1], Y. Assyov[2], V. Yanachkova[1], S. Yordanova[1], A. Ruseva[3], R. Lazarova[3], S. Bezhanova[3], D. Nikolovska[3], P. Yovchevski[4], E. Peneva[4], N. Lazov[4], M. Hristozova[5], I. Kosturkov[3]

[1]Department of Endocrinology – Medical Institute of the Ministry of Interior; [2]Clinic of Endocrinology – University Multiprofile Hospital for Active Treatment „Alexandrovska"; [3]Clinic of Nephrology – Medical Institute – Ministry of Interior, Sofia; [4]Clinic of Gastroenterology – Medical Institute – Ministry of Interior, Sofia; [5]Medical University – Sofia

РЕЗЮМЕ: *Синдромът на хипореninемичен хипоалдостеронизъм се среща при хетерогенна група заболявания с бъбречно засягане. Една от най-честите причини е нефропатията при захарен диабет. Представяме случай на пациентка с тип 2 захарен диабет и хиперкалиемия, несъответстваща на степента на придружаващата начална хронична бъбречна недостатъчнаст. Хормоналните изследвания показаха ниски базални нива на ренина и алдостерона и субнормален отговор спрямо ортостаза при липса на други причини за хиперкалиемия. Диагностицирането на заболяването беше много важно, тъй като лечението с флудрокортизон доведе до нормализиране на калиемията и редукция на риска от ритъмни нарушения, свързани с хиперкалиемията.*

Ключови думи: *хипореninемичен хипоалдостеронизъм, захарен диабет; хиперкалиемия*

SUMMARY: *The syndrome of hyporeninemic hypoaldosteronism can be encountered in a heterogeneous group of diseases with renal involvement. One of the most common reasons is nephropathy in diabetes mellitus. We present a case of a patient with type 2 diabetes mellitus and hyperkalemia not corresponding to the degree of the accompanying initial renal insufficiency. Hormonal tests showed low basal levels of renin and aldosterone and a subnormal response to orthostasis with a lack of other reasons for hyperkalemia. The diagnosis of the disease was crucial because the treatment with fludrocortisone has led to normalization of the hyperkalemia and a reduction of the risk for hyperkalemia related rhythm disorders.*

Keywords: *hyporeninemic hypoaldosteronism, diabetes mellitus, hyperkalemia.*

ВЪВЕДЕНИЕ:

Синдромът на хипореninемичен хипоалдостеронизъм (ХХ) се среща при хетерогенна група заболявания с бъбречно засягане, като в 70% от случаите е налице лека до умерена бъбречна недостатъчност. Характеризира се с хиперкалиемия и в половината от случаите с хиперхлоремична метаболитна ацидоза, поради което се обозначава често като тип IV бъбречна тубулна ацидоза [1,

http://dx.doi.org/10.5272/jimab.2015211.694

Journal of IMAB
ISSN: 1312-773X
http://www.journal-imab-bg.org

OPEN ACCESS

Journal of IMAB - *Annual Proceeding (Scientific Papers)* 2015, vol. 21, issue 1

REPRODUCTIVE FACTORS AND COLORECTAL CANCER RISK. Case - control study.

Adriana Ruseva[1], Radka Lazarova[1], Ilko Kosturkov[1], Vesselina Ianachkova[2], Stella Yordanova[2], Zhivka Boneva[2], Diana Nikolovska[1]

1) Clinic of Gastroenterology, Medical Institute - Ministry of Interior, Sofia

2) Department of Endocrinology, Medical Institute - Ministry of Interior, Sofia Bulgaria

Summary.

Colorectal cancer is one of the most common cancers worldwide. The role of the female sex hormones in the etiology of the disease is very intriguing. Reproductive factors are surrogate measure of lifetime exposition to the sex hormones.

Purpose: Our aim is to investigate the association between the reproductive factors and colorectal carcinoma risk.

Materials and methods: We include 234 Bulgarian women in our study – 117 cases with colorectal cancer and the same number of healthy controls. Cases are divided into three groups according to the localization of the tumor. We conduct case-control study, using questionnaires about reproductive factors. We use the following statistical methods – descriptive, variational analysis, binary logistic regression.

Results: We observed that only the age at menopause is associated with colorectal cancer risk, and this factor has strongest protective effect in the proximal colon (**95% CI** - 0,051-0,781, **OR** – 0,200, **p – 0,021).**

Conclusion: Analyzing our data we observed that among Bulgarian women the only reproductive factor that show association with the risk of colorectal cancer is the age at menopause.

Keywords: colorectal cancer, reproductive factors, risk factors, age at menopause.

INTRODUCTION:

Colorectal cancer is one of the commonest malignancies worldwide. The incidence is highest in developed countries, but recently its prevalence also increases in developing countries. [1] It is the second reason for deathcause by malignant disease in Bulgaria, according to the last statistical data. Many experimental and observational studies explored the association between colorectal cancer risk and certain risk factors. The role of the female sex hormones in the etiology of the disease is very intriguing. Reproductive factors are surrogate measure of life time exposition to the sex hormones. Theinformationabouttheroleofthesefactorsincolorectalcancergenesis is inconsistent. Most of the studies demonstrate that the colorectal cancer risk is lower in women with later age at menarche and at menopause. [2] The number of liveborn children is also important and the risk decreases with the birth of five or more children, or if the interval between the first and last birth is shorter. [2, 3] The younger age of first birth [3, 4] and longer lactation are taken as a protective factors. [1, 2] Some studies find, that body mass index and hormone therapy use may modify the association of these factors with colorectal cancer risk. [2, 5] Another studies demonstrate different results for the certain subsite of the carcimon in the colon. [3,6] There are researches that observed conflicting results or null association between reproductive factors and colorectal cancer risk. [5,7, 8]

With respect to hormone therapy use (as a hormone replacement therapy or oral contraceptive), data are also inconsistent. Duration of the use, composition of the therapy (estrogen only, or estrogen with progestin) and years since last use are of great importance. [3] Some studies reported hormone therapy as a factor decreasing the incidence of colorectal carcinoma. [9], and others restricted this effect only to the progesterone containing drugs. [2]

In this study we define as reproductive factors the age at menarche and menopause, number of children, age at first and last birth, duration of lactation (average for each child and for lifetime), and female sex hormone use (as hormone replacement therapy or as oral contraceptive), duration of use and the time past since the last use.

PURPOSE:

To investigate the association between colorectal cancer risk and reproductive factors. and to evaluate the influence of the cancer subsite (proximal, distal colon and rectum) on this association.

MATERIALS AND METHODS:

We conducted case-control study. We evaluate 234 Bulgarian women, on age from 22 to 86, with average age 62,69±11,32. Patients are divided into two groups – 117 cases (with colorectal cancer) and the same number of healthy controls. Cases are distributed by tumor subsite – proximal, distal colon and rectum. All participants are statistically uniform by age. Each participant complete questionnaire about reproductive factors mentioned above, by the help of trained interviewer. The questionnaire includes questions about: All data are statistically managed by IBM SPSS Statistics 22.0 program. We accept $p < 0,05$ as a level of significance, wherein we reject the null

СЪВРЕМЕННИ МЕДИЦИНСКИ ПРОБЛЕМИ

ИЗДАНИЕ НА МЕДИЦИНСКИ ИНСТИТУТ НА МВР
РЕПУБЛИКА БЪЛГАРИЯ

JOURNAL OF CONTEMPORARY MEDICAL PROBLEMS

БРОЙ 1/2015

ИЗДАТЕЛСТВО •ЛИЦЕ ПРЕС•

СЪДЪРЖАНИЕ

CONTENTS

ХРАНЕНЕ И ЗАХАРЕН ДИАБЕТ

С. Йорданова[1], В. Яначкова[1], Ж. Бонева[1], Я. Асов[2], А. Русева[3], Р. Лазарова[3]
[1]Отделение по ендокринология – МИ – МВР, София, [2]Клиника по ендокринология – УМБАЛ „Александровска", [3]Клиника по гастроентерология – МИ – МВР, – София

NUTRITION AND DIABETES MELLITUS

S. Yordanova[1], V. Ianachkova[1], Zh. Boneva[1], A. Ruseva[3], R. Lazarova[3]
[1]Department of Endocrinology – Medical Institute of the Ministry of Interior, [2]Clinic of Endocrinology – University Multiprofile Hospital for Active Treatment „Alexandrovska", [3]Clinic of Gastroenterology – Medical Institute – Ministry of Interior, Sofia

РЕЗЮМЕ: *Храненето играе важна роля в лечението на захарния диабет. Наличните доказателства сочат, че не съществува идеално съотношение на макронутриенти в храната, валидна за всички пациенти с диабет. Диетолечението трябва да се индивидуализира съобразно терапевтичните цели и личните предпочитания. При пациенти с наднормено тегло и затлъстяване умерената загуба на тегло е свързана със здравни ползи. Мониторирането на приетото количество въглехидрати чрез въглехидратното броене е важна стратегия за подобряване на гликемичния контрол. Богатото на ненаситени мазнини хранене води до подобряване на гликемичния контрол и до понижаване на сърдечно-съдовия риск. Намаленият прием на протеин при пациенти с диабетна нефропатия води до понижаване на албуминурията, но не променя темпа на понижаване на скоростта на гломерулната филтрация, така че тази мярка не е необходима. Препоръчва се хората с диабет да намалят консумацията на натрий под 2,300 mg/дневно.*

Ключови думи: *захарен диабет, диетолечение, макронутриенти, загуба на тегло, мазнини, въглехидрати, протеини, алкохол, натрий.*

SUMMARY: *Medical nutrition therapy plays a major role in diabetes management. Evidence suggests that there is not an ideal proportion of macronutrients for all people with diabetes. Medical nutrition therapy must be individualized to achieve treatment goals and personal preferences. For overweight or obese people modest weight loss may provide health benefits. Monitoring carbohydrate intake by carbohydrate counting is an important strategy in achieving glycemic control. Unsaturated fat – rich eating pattern may benefit glycemic control and may reduce cardio-vascular risk. Although reducing protein intake below usual in individuals with diabetic nephropaty has been shown to reduce albuminuria, it does not alter the glomerular filtration rate and therefore it is not necessary. For people with diabetes is recommended to reduce sodium to less than 2,300 mg/day.*

Keywords: *diabetes mellitus, medical nutrition therapy, macronutrients, weight loss, fats, carbohydrates, protein, alcohol, sodium.*

УВОД

Честотата на захарния диабет (ЗД) в световен мащаб непрекъснато нараства и се очаква през 2035 г. да достигне 592 млн. [14]. Увеличава се броят на болните с всички типове ЗД, но най-прогресивно на тези с тип 2. Причините за това нарастване се коренят в застаряването на населението и негативната промяна в начина на живот – висококалорийното, богато на мазнини хранене, обездвижването и ръста на затлъстяването.

В комплексния подход към пациентите със захарен диабет важно място заема целенасочената промяна в стила на живот – контрол на теглото, умерена физическа активност, подходящ диетичен режим. Диетолечението подобрява гликемичния контрол – в проучвания при пациенти със ЗД тип 1 се наблюдава намаление на гликирания хемоглобин (HbA1c) с 0,3 до 1%, а при пациенти с тип 2 с 0,5 до 2% [7]. Здравословното хранене съдейства за предпазване и забавяне на появата на усложнения, спомага за контрола на липидите и артериалното налягане, намалява сърдечно-съдовия риск. Позитивите на диетолечението го правят задължителен, ефективен и безценен компонент от терапевтичната стратегия. Препоръчително е всеки диабетик да посещава периодично специалист по хранене или да бъде включен в групови програми за обучение. Системните срещи с мултидисциплинарния екип затвърждават и допълват знанията, поддържат съдействието и мотивацията на пациента, осигуряват им подкрепа и контрол.

Както фармакологичното, така и диетолечението трябва да бъдат индивидуализирани. Ди-

СЪВРЕМЕННИ МЕДИЦИНСКИ ПРОБЛЕМИ

ИЗДАНИЕ НА МЕДИЦИНСКИ ИНСТИТУТ НА МВР
РЕПУБЛИКА БЪЛГАРИЯ

JOURNAL OF CONTEMPORARY MEDICAL PROBLEMS

БРОЙ 2/2015

ИЗДАТЕЛСТВО •ЛИЦЕ ПРЕС•

СЪДЪРЖАНИЕ

CONTENTS

ГЕСТАЦИОННАТА ТИРЕОТОКСИКОЗА КАТО СПЕЦИФИЧНО СЪСТОЯНИЕ НА БРЕМЕННОСТТА

В. Яначкова[1], С. Йорданова[1], Ж. Бонева[1], Я. Асьов[2], М. Христозова[1], П. Мошев[4], А. Русева[3], И. Костурков[3], Р. Лазарова[3], И. Вълчанова[5], Св. Василева[6]

[1]Отделение по ендокринология, МИ – МВ; [2]Клиника по ендокринология, УМБАЛ „Александровска"; [3]Клиника по гастроентерология, МИ – МВР; [4]Отделение по акушерство и гинекология, МИ – МВР; [5]Отделение по клинична лаборатория, МИ – МВР; [6]УНГ клиника, МИ – МВР

GESTATIONAL THYROTOXICOSIS AS A SPECIFFIC PREGNANCY STATE

V. Yanatchkova[1], S. Yordanova[1], Zh. Boneva[1], Y. Asyov[2], M. Hristozova[1], P. Moshev[4], A. Ruseva[3], I. Kosturkov[3], R. Lazarova[3], I. Valchanova[5], Sv. Vasileva[6]

[1]Department of Endocrinology – Medical Institute of the Ministry of Interior; [2]Clinic of Endocrinology – University Multiprofile Hospital for Active Treatment „Alexandrovska"; [3]Clinic of Gastroenterology – Medical Institute – Ministry of Interior, Sofia, [4]Department of Obstetrics and Gynecology – Medical Institute of the Ministry of Interior, [5]Department of Clinical laboratory – Medical Institute of the Ministry of Interior, [6]Clinic of ENTD

РЕЗЮМЕ: *Нарушенията в тиреоидната функция са втора по честота ендокринопатия, изявяваща се по време на бременност. Автоимунните тиреоидни заболявания са основните, водещи до изява на хипер- или хипотиреоидизъм при бременни жени. Съществуват специфични състояния на бременността, които водят до промени в тиреоидната функция и изява на така наречената гестационна тиреотоксикоза. Те се свързват с повишени нива на свободен тироксин (ФТ4), супресия на тиреостимулиращия хормон (ТСХ), минимално увеличение на щитовидната жлеза, разнообразни клинични прояви, характерни за хипертиреоидизъм и отсъствие на антитиреоидни антитела. Установено е, че тези прояви са резултат на стимулиращия ефект на високите нива на човешкия хорионгонадотропин (ЧХГТ) върху тиреоидята. Такива състояния са хиперемезис гравидарум, трофобластна болест – характеризиращи се с абнормно високи нива на ЧХГТ. Възможно е и една нормално протичаща, но двуплодна бременност също да протича с по-високи нива на ЧХГТ и изява на клинични прояви на тиреотоксикоза.*

Ключови думи: *тиреоидна функция, бременност, ЧХГТ (човешки хорионгонадотропин), гестационна тиреотоксикоза.*

SUMMARY: *Thyroid disorders are the second most common endocrinopathy, expressed during pregnancy. Autoimmune thyroid diseases, are the main disorders leading to the expression of hyper or hypothyroidism in pregnant women. There are also specific states of pregnancy, leading to changes in thyroid function and they express speciffic state known as Gestational thyrotoxicosis. They are associated with elevated levels of FT4, TSH suppression, a minimal increase of the thyroid gland volume, a variety of clinical manifestations which are typical for hyperthyroidism and the absence of antibodies. It was found that these events are the result of the incentive effect of high levels of hCG(human chorionicgonadotropin) on thyroid gland. These conditions are hyperemesis gravidarum, trophoblastic disease – characterized by abnormally high levels of hCG. It is possible a normal, but twin pregnancy to occurs with higher levels of HGT and expression of clinical manifestations of thyrotoxicosis.*

Keywords: *thyroid function, pregnancy,hGT, gestational thyrotoxicosis.*

СЪВРЕМЕННИ МЕДИЦИНСКИ ПРОБЛЕМИ

ИЗДАНИЕ НА МЕДИЦИНСКИ ИНСТИТУТ НА МВР
РЕПУБЛИКА БЪЛГАРИЯ

JOURNAL OF CONTEMPORARY MEDICAL PROBLEMS

БРОЙ 1/2015

ИЗДАТЕЛСТВО •ЛИЦЕ ПРЕС•

СЪДЪРЖАНИЕ

CONTENTS

ЗАТЛЪСТЯВАНЕ И КОЛОРЕКТАЛЕН КАРЦИНОМ

А. Русева[1], Р. Лазарова[1], И. Костурков[1], Р. Радева[1], С. Бежанова[1], В. Яначкова[2], С. Йорданова[2], Ж. Бонева[2], Д. Николовска[1]
[1]Клиника по гастроентерология МИ – МВР, София,
[2]Отделение по ендокринология МИ – МВР, София

OBESITY AND COLORECTAL CANCER

A. Ruseva[1], R. Lazarova[1], I. Kosturkov[1], R. Radeva[1], S. Bezhanova[1], V. Yanachkova[2], S. Yordanova[2], Zh. Boneva[2], D. Nikolovska[1]
[1]Clinic of GastroeneterologyMedical Institute – Ministry of Interoir, Sofia,
[2]Department of EndocrinologyMedical Institute – Ministry of Interoir, Sofia

***РЕЗЮМЕ**: Според последните статистически данни злокачествените новообразувания на дебелото черво са на второ място като причина за смърт сред всички неоплазми. Карциномите на колона и ректума съставляват значителен процент от глобалните загуби от заболяемост и смъртност от карциноми. Широката географска вариация в честотата на колоректалния карцином (КРК) предполага, че рисковите фактори произтичащи от начина на живот, играят значителна роля в етиологията на болестта. Един от основните сигурни фактори, който се свързва с появата на КРК, е затлъстяването.*
***Ключови думи**: колоректален карцином, затлъстяване, възпаление, рискови фактори.*

***SUMMARY:** Malignant tumors of the colon are the second reason for death caused by neoplasms,according to recent statistical data. Colorectal cancer is a significant part of a global cost of mortality and morbidity of carcinomas. Wide geographical variety of colorectal carcinom incidence, suggest that lifestyle risk factors play major role in the etiology of the disease. One of the certain risk factors connected with the colorectal cancer is obesity.*
***Keywords**: colorectal cancer, obesity, inflammation, risk faktors.*

ВЪВЕДЕНИЕ

Според последните статистически данни злокачествените новообразувания на дебелото черво са на второ място като причина за смърт сред всички неоплазми. Годишно се диагностицират приблизително един милион нови случая на КРК, а половин милион умират.

Колоректалният рак възниква у хора с придобито или унаследено предразположение и под влияние на група от рискови фактори. Много от тези фактори са свързани с т.нар. „западен" начин на живот. Две трети от случаите на КРК са в икономически развитите страни. Колоректалният карцином възниква в резултат на геномна нестабилност, водеща до дисрегулация на молекулни пътища, контролиращи клетъчната миграция, диференциацията, пролиферацията и апоптозата. Инактивират се тумор-супресорни гени и се активират онкогени. В резултат на тези промени нормалната лигавица се трансформира в аденом, а впоследствие в карцином или в карцином denovo [1, 3, 4, 9].

Широката географска вариация в честотата на КРК предполага, че рисковите фактори, произтичащи от начина на живот играят значителна роля в етиологията на болестта [1]. Един от основните сигурни фактори, който се свързва с появата на КРК е наднорменото тегло [13].

Затлъстяване и КРК. Затлъстяването е комплексно нарушение, включващо натрупването на ексцесивно количество телесни мазнини. То се дефинира като индекс на телесната маса (ИТМ) над 30 кг/м^2. Според Световната здравна организация честотата му се е удвоила в световен мащаб от 1980$^{-та}$ година до сега. През 2014 година повече от 600 милиона възрастни са със затлъстяване. Четиридесет и два милиона деца под 5-годишна възраст са били със свръхтегло или затлъстяване през 2013 година. Затлъстяването не е само козметичен дефект. Най-честите последици от него са: сърдечно-съдови заболявания, захарен диабет, заболявания на опорно-двигателната система и някои карциноми (ендометриален, на гърдата и колона) [22]. На затлъстяването се дължат15–20% от смъртността от всички видове рак [15]. Налице е директна и независима връзка и с КРК. Около 11% от случаите на КРК в Европа се дължат на

БЪЛГАРСКО НАУЧНО ДРУЖЕСТВО ПО АКУШЕРСТВО И ГИНЕКОЛОГИЯ
BULGARIAN SCIENTIFIC SOCIETY OF OBSTETRICS AND GYNECOLOGY

АКУШЕРСТВО И ГИНЕКОЛОГИЯ

ОФИЦИАЛНО ИЗДАНИЕ НА БЪЛГАРСКОТО НАУЧНО ДРУЖЕСТВО
ПО АКУШЕРСТВО И ГИНЕКОЛОГИЯ

Volume 56 ISSN 0324-0959

Адрес на редакцията:
ул. Здраве 2, София 1431
Тел. 02 / 91-72-353
Факс 02 / 851-72-71
e-mail: bsobgyn@abv.bg
Моб. 0888 92 56 26

СЪДЪРЖАНИЕ

ОРИГИНАЛНИ СТАТИИ

ОБЗОРИ

КЛИНИЧНИ СЛУЧАИ

ЗА ПРАКТИКАТА

CONTENS

ORIGINAL ARTICLES

REVIEWS

CLINICAL CASES

FOR THE PRACTICE

2005; 192:795-806

6. Nygaard I, Bradley C, Brandt D. Pelvic organ prolapsed in older women: prevalence and risk factors. Obstet Gynecol 2004; 104:489-497

7. Olsen AL, Smith VJ, Bergstrom JO et al. Epidemiology of surgically managed pelvic organ prolapsed and urinary incontinence. Obstet Gynecol 1997; 89: 501-506

8. Spence-Jones C, Kamm MA, Hendry MM et al. Bowel disfunction: a pathogenic factor in uterovaginal prolapsed and urinary stress incontinence. Br J Obstet Gynaecol 1994; 101:147-152

9. Nygaard I, McCreedy R, Brubaker L et al. Abdominal sacrocolpopexy: a comprehensive review. Obstet Gynecol 2004; 104:805-823

10. Culligan PJ, Murphy M, Blackwell L et al. Long term success of abdominal sacral colpopexy using synthetic mesh. Am J Obstet Gynecol 2002; 187:1473-1482

11. Price N, Slack A, Jackson SR (2011) Laparoscopic sacrocolpopexy: an observational study of functional and anatomical outcomes. Int Urogynecol J 22:77-82

12. Banerjee C, Noe KG. Laparoscopic pectopexy: a new technique of prolapsed surgery for obese patients. Arch Gynecol Obstet 2011; 284:631-635

13. Wattiez A, Mashiach R, Donoso M. Laparoscopic repair of vaginal vault prolapse. Curr Opin Obstet Gynecol 2003; 15:315-9

14. Jo YR, Kim JY, Jeon MJ. Significant gastrointestinal morbidity after sacrocolpopexy: the incidence and risk factors. Obstet Gynecol Sci 2014; 57:304-309

ОБЗОРИ

РОЛЯТА НА ВИТАМИН Д3 ПО ВРЕМЕ НА БРЕМЕННОСТ

Яначкова В.

Специализиран ендокринологичен кабинет - Медицински комплекс „Д-р Щерев", София

Резюме: *Проучванията в последните години показват, че нормалните нива на витамин Д3 при бременните са от голямо значение за правилното протичане на бременността и редуцирането на риска от възникване на усложнения при майката и плода. Освен това достатъчните нива на витамин Д на жената се оказват есенциални не само за развитието на детето вътреутробно, но и след раждането му.*

THE ROLE OF VITAMIN D3 DURING PREGNANCY

Ianatchkova V.

Endocrinological specialized office- Reproductive Health Hospital " D-r Shterev", Sofia

Abstract: *Studies in recent years show that normal levels of vitamin D3 during pregnancy are essential for the proper conduct of pregnancy and reducing the risk of complications in the mother and fetus. Furthermore, sufficient levels of vitamin D of the mother are not only essential for the development of the child in utero, but also afterwards.*

Витамин Д е мастно-разтворим витамин и прохормон, изпълняващ важна роля в костният метаболизъм, в частност калциево-фосфорната хомеостаза. Наред с това витамин Д3 (вит.Д3) притежава и редица други извънкостни биологични ефекти ("некласически ефекти). Те се реализират благодарение на т.нар. рецептори (VDR) разположени в различните тъкани. Известно е значението на витамин Д3 за инсулиновата секреция и действие, имунна модулация. Освен това притежава антипролиферативен ефект (чрез инхибиране на ангиогенезата, повишаване на диференциацията и нарастване на апоптозата на туморните клетки), влияе върху развитеието на белия дроб на плода и т.н.(1,2,12). Установено е, че рецептори за витамин Д са налице в яйчника, ендометриума, миометриума, млечните жлези, плацента, откъдето следва и ролята му по отношение на репродукцията - стероидогенеза, калциев (Ca) трансплацентарен транспорт, повишена продукция на плацентарен лактоген, ефект върху хроничното възпаление и ендометриозата

Danish Medical Birth Register, the Danish Prescription Register, the Danish Patient Register, and data on income, socioeconomic status, and level of education from Statistics Denmark. We collected data on all filled prescriptions for APs, ADs, and mood-stabilising AEDs for the study population. AEDs were restricted to mood-stabilising indications, defined as prescriptions for AEDs within 120 days before or after a prescription for either an AP or AD drug. Women previously diagnosed with epilepsy were excluded. Exposure was defined as reimbursement of at least one relevant prescription during pregnancy. Start of pregnancy was defined as first day of last period. Annual prevalence was calculated as number of exposed pregnancies per 1000 pregnancies per calendar year.

Results: The use of antipsychotics (AP) increased 2.5-fold from a prevalence proportion (PP) of 1.5 per 1000 pregnancies to 3.7 for pregnancies ending in a delivery. Use of mood-stabilizing AEDs increased from a PP of 0.1 to 2.1 during the study period. The PP for AP and mood-stabilizing AEDs was nearly twice as high for pregnancies ending in miscarriage or termination compared with pregnancies ending in delivery. A marked increase in the prevalence of AD use during pregnancy was seen from 2000 to 2011 but appears slightly in decline from 2012. Age, smoking and social status were associated with increased use. Distribution of utilization appeared reasonably in accordance with diagnoses.

Conclusions: The use of AP, AD, and mood-stabilising AEDs during pregnancy has increased substantially in Denmark form 2000 to 2016. The use of AD from 2012 appears slightly in decline.

509 | Development and evaluation of health education materials for women with gestational diabetes mellitus

Radiana Staynova[1]; Stanislav Gueorguiev[1]; Elina Petkova[1]; Emanuela Vasileva[2]; Vesselina Ianatchkova[3]

[1] *Department of Pharmaceutical Sciences, Faculty of Pharmacy, Medical University of Plovdiv, Plovdiv, Bulgaria;* [2] *Department of Propaedeutics of Internal Diseases, Faculty of Medicine, Medical University of Plovdiv, Plovdiv, Bulgaria;* [3] *Reproductive Health Hospital "Dr Shterev", Sofia, Bulgaria*

Background: Written health education materials can improve patients' knowledge, adherence to treatment, prevent disease, and reduce health care costs. The prevalence of gestational diabetes mellitus (GDM) has been increasing worldwide. Pregnant women require accessible, easy-to-understand and evidence-based medical information about GDM.

Objectives: The aim of this study is to create and evaluate health education materials for women with GDM.

Methods: The study included three phases: (1) review of the literature for relevant publications; (2) development of written health education materials for women with GDM; (3) evaluation of created education materials by pregnant women. A seven-item self-administered questionnaire was adopted for evaluation of patient satisfaction after the use of educational materials. The instrument was based on five-point Likert scale. Descriptive and comparative analysis of the results was conducted.

Results: Educational materials were developed according to the best practice principles in written health education materials design relating to content, structure, language, layout and illustrations. The educational booklet provides comprehensive information about GDM and its management (medical nutrition therapy, exercise, insulin use, self-monitoring of blood glucose). Information about follow-up of GDM and prevention of type 2 diabetes has also been included. The usefulness of the educational materials and patient satisfaction were evaluated by a sample group of 20 pregnant women who represent the target audience. Approximately 95% (mean = 4.75) agreed or strongly agreed that the information in the educational booklet was useful. In regard to illustrations, figures and tables 90% (mean = 4.50) of women are satisfied or very satisfied. Patient evaluation regarding the understanding and readability of the written material showed a satisfaction rate of 85% (mean = 4.25). The overall assessment for the educational materials is very high—excellent (65%), very good (30%) and good (5%).

Conclusions: A very high level of satisfaction was achieved among women participated in the study. The educational materials created and evaluated in this study will help health care providers to improve patients' knowledge about GDM and its management. Providing educational materials can enhance patients' health literacy as well as their personal responsibility, motivation and attitude to their own health.

510 | No increase in serious or opportunistic infections in infants prenatally exposed to biologics

Christina Chambers; Kenneth L. Jones; Diana L. Johnson; Ronghui Xu; Yunjun Luo

University of California San Diego, La Jolla, California

Background: Biologics for the treatment of autoimmune diseases are used by women who become pregnant. Most of these drugs are not thought to cross the placenta in appreciable amounts until the third trimester. There has been theoretical concern that fetal exposure could lead to risk for infections in the neonate.

Objectives: We examined the risk of serious or opportunistic infections in infants up to 1 year of age born to mothers who had or had not been treated with biologics in pregnancy.

Methods: MotherToBaby Pregnancy Studies enrolled women in a prospective cohort study across the United States and Canada who did or did not have rheumatoid arthritis, Crohn's Disease, ulcerative colitis, ankylosing spondylitis, psoriasis, or psoriatic arthritis, and who were or were not treated with a biologic medication. Data from maternal interviews and medical records were obtained, and live born infants were followed up to 1 year of age regarding the incidence of a predefined list of opportunistic or serious infections requiring hospitalization. Infant outcomes following exposure to biologics by gestational age at discontinuation of the drug were compared with outcomes in infants born to women with the same autoimmune diseases but no

E-P01.15
Types and frequency of chromosome aberrations in Bulgarian patients with infertility

M. Dimitrova[1], N. Trpchevska[1], M. Hristova-Savova[1], T. Timeva[1], P. Andreeva[1], T. Milachich[1], T. Arabadzhi[1], M. Yunakova[1], V. Yanachkova[1], M. Konovalova[1], R. Milcheva[1], G. Ganeva[1], D. Savova[1], N. Magunska[1], I. Dimitrov[1], Y. Bachvarov[1], R. Bilchev[1], V. Manchev[1], M. Aleksandrov[1], A. Shterev[1], I. Dimova[2]

[1]Ob./Gyn. Hospital "D-r Shterev", Sofia, Bulgaria, [2]Department of Medical genetics, Medical University Sofia, Sofia, Bulgaria

Background: Reproductive genetics combines reproductive and genetic technologies aiming in precise diagnostics and the most suitable therapeutic options, as well as prevention of birth of children with congenital anomalies and genetic diseases. We aimed at determining the types and frequency of the chromosome aberrations in patients with reproductive failure - sterility, miscarriages, stillbirths, and implantation failures after in vitro procedures. Materials and Methods: We have analysed 488 patients from our reproductive clinics by karyotype analysis using G-banding technique. Results: We detected 21 (4.3%) cytogenetic aberrations, both numerical and structural. Klinefelter syndrome was revealed in 2 out of 27 azoospermic men (7.4%). Structural chromosomal rearrangements were established in 4 out of 258 women (1.6%), and in 3 out of 230 men (1.3%). One complex three-way translocation was detected in a woman, it has familial character - 46, XX, t(1p31->11q22->8q12->1p31). The other translocations included: 46, XX, t(7; 10)(q11; p13); 46, XX, t(9; 11)(p23; p12); 46, XX, t(11; 22)(q23; q11.2); 46, XY, t(5, 6)(p13; q16); 46, XY, t(1; 11)(p36.1; q12). One ring chromosome 21 (46, XY, r(21)) was found in an azoospermic man. In 1% of tested patients we found inversion of chromosome 9. Sex chromosome low level mosaicism was found in 1% as well. Conclusions: In about 5% of patients attending reproductive clinics cytogenetic abnormalities were revealed. They have important impact for therapy decision making. In two of translocation carriers successful pregnancy was realized by means of preimplantation genetic diagnostics.

M. Dimitrova: None. **N. Trpchevska:** None. **M. Hristova-Savova:** None. **T. Timeva:** None. **P. Andreeva:** None. **T. Milachich:** None. **T. Arabadzhi:** None. **M. Yunakova:** None. **V. Yanachkova:** None. **M. Konovalova:** None. **R. Milcheva:** None. **G. Ganeva:** None. **D. Savova:** None. **N. Magunska:** None. **I. Dimitrov:** None. **Y. Bachvarov:** None. **R. Bilchev:** None. **V. Manchev:** None. **M. Aleksandrov:** None. **A. Shterev:** None. **I. Dimova:** None.

E-P01.16
Chromothripsis and hypodiploidy in abortive materials from malformed fetuses

I. Dimova[1], P. Chaveeva[2], J. Karagyozova[3], V. Peicheva[4], G. Stancheva[4], M. Hristova-Savova[2], N. Trpchevska[2], R. Kaneva[4]

[1]Department of medical genetics, Medical University Sofia, Sofia, Bulgaria, [2]SAGBAL "Dr Shterev", Sofia, Bulgaria, [3]SBALAG "Maichin dom", Sofia, Bulgaria, [4]Center of Molecular medicine, Medical University Sofia, Sofia, Bulgaria

Introduction: Chromotripsis is a mutational mechanism in which powerful rupture of chromosomes in different points occurs in a cell cycle, leading to chromosome fragmentation and subsequent uneven connections. As a result, many parts of chromosomes remain deleted. The rupture is due to external or internal mutagenic factors such as ionizing radiation, free radicals, and mutations in the genes for cell repair mechanisms. The consequences are associated with impaired apoptosis, cell division and survival. Impaired apoptosis in turn leads to hypodiploidy. Materials and methods: We report here 4 cases with ultrasound or cytogenetic anomalies of the fetus, which have been analyzed by array CGH analysis. Results: In a case with multiple development anomalies (agenesis of corpus callosum, tetralogy of Fallot, omphalocele) we detected multiple genomic deletions, varied from del1p36 to monosomies of chromosomes 15, 16, 17, 19 and 22. In the second case with intrauterine retardation, severe heart malformation and fetal death, we detected deletion of 19p and additional multiple genomic deletions - the larger were del17p13 (>4 Mbp), del17q21 (>4 Mbp), del22q13 (>4 Mbp). In the case with marker chromosome we established duplication of 18p (explaining the marker) and multiple additional deletions, including 1p36, 7q11, 7q21, 12q22-q24, 17p13-q21, 22q, and monosomies of chromosomes 16 and 19. Finally, more than 300 genomic aberrations (more than 80% of them were deletions), varied between several Kbp up to 5 Mbp, were detected in a fetus with holoprosencephaly. Conclusion: We conclude that chromotripsis could underlie the impaired fetal development, most probably due to the severe clastogenic effect.

I. Dimova: None. **P. Chaveeva:** None. **J. Karagyozova:** None. **V. Peicheva:** None. **G. Stancheva:** None. **M. Hristova-Savova:** None. **N. Trpchevska:** None. **R. Kaneva:** None.

sciendo

DOI: 10.2478/folmed-2018-0041

ORIGINAL ARTICLE, MEDICINE

Written Health Education Materials for Women with Gestational Diabetes Mellitus – Evaluation of Usefulness and Patients' Satisfaction

Radiana A. Staynova[1], Stanislav R. Gueorguiev[1], Elina S. Petkova-Gueorguieva[1], Emanuela V. Vasileva[2,3], Assena H. Stoimenova[4,5], Vesselina E. Yanatchkova[6], Vasil G. Madzharov[1]

[1] Department of Pharmaceutical Sciences, Faculty of Pharmacy, Medical University of Plovdiv, Plovdiv, Bulgaria
[2] Department of Propaedeutics of Internal Diseases, Faculty of Medicine, Medical University of Plovdiv, Plovdiv, Bulgaria
[3] Clinic of Endocrinology and Metabolic Disorders, Kaspela University Hospital, Plovdiv, Bulgaria
[4] Bulgarian Drug Agency, Sofia, Bulgaria
[5] Department of Organization and Economics of Pharmacy, Faculty of Pharmacy, Medical University of Sofia, Sofia, Bulgaria
[6] Dr Shterev Hospital, Sofia, Bulgaria

Correspondence:
Radiana A. Staynova, Department of Pharmaceutical Sciences, Faculty of Pharmacy, Medical University of Plovdiv, 15A Vassil Aprilov Blvd., 4002 Plovdiv, Bulgaria
E-mail: radiana.staynova@mu-plovdiv.com
Tel: +35932602085

Received: 30 Mar 2018
Accepted: 22 May 2018
Published Online: 06 Aug 2018
Published: 31 Mar 2019

Key words: health education materials, gestational diabetes mellitus, pregnancy

Citation: Staynova RA, Gueorguiev SR, Petkova-Gueorguieva ES, Vasileva EV, Stoimenova AH, Ianatchkova VE, Madzharov VG. Written health education materials for women with gestational diabetes mellitus – evaluation of usefulness and patients' satisfaction. Folia Med (Plovdiv) 2019;61(1):
doi: 10.2478/folmed-2018-0041

Background: Written health educational materials are an integral part of the treatment process. Because of the constantly increasing gestational diabetes mellitus (GDM) global rate, pregnant women require accessible, easy-to-understand and evidence-based medical information about this pregnancy complication.

Aim: To adapt and elaborate printed educational materials on GDM and to evaluate the usefulness of the produced training materials and pregnant women's satisfaction.

Materials and methods: The present study implemented a methodological approach covering three phases: (1) systematic literature review; (2) compilation of printed educational materials for pregnant women with GDM; (3) evaluation of the usefulness and satisfaction with the produced educational materials through a focus group consisting of pregnant women. A seven-item self-administered feedback questionnaire was adopted for evaluation of patient satisfaction after the use of educational materials.

Results: An educational manual was developed in compliance with the main requirements for effectiveness of educational materials referring to content, structure, language, layout and illustrations. The usefulness of the educational manual and patient satisfaction were evaluated by a sample group of 20 women with GDM. Approximately 95% agreed or strongly agreed that the information in the educational manual was useful. The patients' assessment of the understanding and readability of the written materials showed a satisfaction rate of 85%. The overall assessment for the educational materials was very high - excellent (65%), very good (30%) and good (5%).

Conclusion: The provision of educational materials on GDM can enhance pregnant women's health literacy as well as their responsibility, motivation and attitude to their personal health.

BACKGROUND

Medical terms and wording are often complicated and unintelligible for the patients. Easily accessed and understandable health information can play a decisive role in patient's compliance with drug treatment.[1,2]

Education has become an integral part of the care for patients' health. In the educational process health care providers can assist their patients in acquiring new knowledge and skills, in detecting and correcting their mistakes. The aim is to stimulate the patients' active involvement in the therapeutic process. Some studies have demonstrated that written educational materials are most effective and easily accessible for the patients.[3]

Verbal communication is significant for the educational process but on its own account it is not sufficient. The availability of printed educational

folia medica

MEDICAL UNIVERSITY of PLOVDIV, Bulgaria

www.foliamedica.bg

Published quarterly

ISSN 0204-8043 (print)
ISSN 1314-2143 (online)

VOLUME 62

2/2020
April - June

folia medica

62, 2 · 2020
April - June

Contents

Reviews

Original Articles

Case Reports

folia medica

Folia Medica 62(2): 408-11
DOI: 10.3897/folmed.62.e48580

Case Report

Autoimmune Polyglandular Syndrome Type 2 and Pregnancy

Vesselina Yanachkova[1], Petya Chaveeva[1], Radiana Staynova[2], Ralitsa Milcheva[1]

[1] *Dr Shterev Hospital, Sofia, Bulgaria*

[2] *Department of Pharmaceutical Sciences, Faculty of Pharmacy, Medical University of Plovdiv, Plovdiv, Bulgaria*

Corresponding author: Vesselina Yanachkova, Dr Shterev Hospital, 25-31 Hristo Blagoev St., Razsadnika quarter, 1330 Sofia, Bulgaria; E-mail: v_ess@abv.bg

Received: 18 Nov 2019 ♦ **Accepted:** 24 Nov 2019 ♦ **Published:** 30 June 2020

Citation: Yanachkova V, Chaveeva P, Staynova R, Milcheva R. Autoimmune polyglandular syndrome type 2 and pregnancy. Folia Med (Plovdiv) 2020;62(2):408-11. doi: 10.3897/folmed.62.e48580.

Abstract

Autoimmune polyglandular syndromes are combinations of various endocrine and nonendocrine autoimmune diseases, as well as the presence of elevated organ-specific antibody titers. We present a clinical case of a 41-year-old pregnant patient with type 2 autoimmune polyglandular syndrome, combining Addison's disease, Hashimoto's thyroiditis and hypogonadism. The pregnancy was achieved after the use of assisted reproductive technology. During the pregnancy the patient was strictly monitored. Glucocorticoid and mineralocorticoid replacement therapy was adjusted according to the electrolyte profile and general condition of the patient. Management during pregnancy was difficult due to fluctuations in electrolyte levels, thyroid hormones and orthostatic manifestations. Prior to delivery adrenal crisis occurred, but the condition was successfully managed. No complications were reported for the mother and the newborn.

Keywords

Addison's disease, autoimmune polyglandular syndrome, Hashimoto's thyroiditis, pregnancy

INTRODUCTION

Autoimmune polyglandular syndromes (APS) are combinations of various endocrine and nonendocrine autoimmune diseases, as well as the presence of elevated organ-specific antibody titers. Often the term 'polyglandular' could be misleading due to the fact that some patients have many endocrine disorders and others have nonendocrine disorders.[1] Patients with one autoimmune disorder are at high risk for an expression of APS. The chance of unlocking a second autoimmune disease in these patients is between 30 and 50 times more common than in the rest of the population.[2] A quarter of the patients with an autoimmune disease will develop a second one during their lifetime.[1]

APS could occur at any age, although different types have age predilection for manifestation. There are four types of APS, but in compliance with the clinical case, a major focus will be put on the APS type 2, which is the most common syndrome.[3,4]

APS type 2 is characterized by: Addison's disease (100%) that may be associated with either autoimmune thyroid disease (Schmidt syndrome) or type 1 diabetes mellitus (Carpenter syndrome), or with both. Addison's disease and autoimmune thyroiditis are more common (70-82% of cases), whereas the combination of Addison's disease and type 1 diabetes mellitus occurs in 30-52% of cases. Non-endocrine disorders such as vitiligo, autoimmune hepatitis, gastritis, pernicious anemia and myasthenia gravis can also present. APS type 2, which is the most common syndrome (1-2:10000/year), may occur at any age in both sexes, but there is a prevalence in middle-aged women, mostly in fourth or fifth decade. The female-to-male ratio is 3:1. APS type 2 includes a heterogeneous group of moderately inherited diseases. Approximately half of the patients with APS type 2 have relatives with autoimmune diseases.[2-6]

PENSOFT.

folia medica

MEDICAL UNIVERSITY of PLOVDIV, Bulgaria

www.foliamedica.bg

Published quarterly

ISSN 0204-8043 (print)
ISSN 1314-2143 (online)

VOLUME 62

3/2020
July - Sep

folia medica

62, 3 · 2020
July - Sep

Contents

Reviews

Original Articles

Short Communication

Case Reports

folia medica

Folia Medica 62(3): 597-600
DOI: 10.3897/folmed.62.e50166

Case Report

Insulin-induced Lipoatrophy in a Patient on Insulin Analogue Therapy: a Case Report

Vesselina Yanachkova[1], Radiana Staynova[2]

[1] *Dr Shterev Hospital, Sofia, Bulgaria*

[2] *Faculty of Pharmacy, Medical University of Plovdiv, Plovdiv, Bulgaria*

Corresponding author: Vesselina Yanachkova, Dr Shterev Hospital, 25-31 Hristo Blagoev St., Razsadnika quarter, Sofia, Bulgaria; E-mail: v_ess@abv.bg; Tel.: +359 886 436 963

Received: 15 Jan 2020 ♦ **Accepted:** 13 Mar 2020 ♦ **Published:** 30 Sep 2020

Citation: Yanachkova V, Staynova R. Insulin-induced lipoatrophy in a patient on insulin analogue therapy: a case report. Folia Med (Plovdiv) 2020;62(3):597-600. doi: 10.3897/folmed.62.e50166.

Abstract

Insulin-induced lipoatrophy is a rare skin complication in patients with diabetes mellitus. It is characterized primarily by localized subcutaneous atrophy of the fatty tissue at the site of frequent insulin injection. We report a clinical case of a 38-year-old woman with lipoatrophy, developed during treatment with insulin analogues. Lipoatrophic zone formation began 3 months after the treatment was initiated. A lipoatrophic defect developed on the thighs and the upper outer arms, resulting from repeated insulin injections at the same site. Regarding lipoatrophic areas, treatment with topical administration of corticosteroids was attempted but without a significant clinical effect. The best prevention from lipoatrophy development is education of patients regarding rotation of insulin injection sites and more frequent needle change.

Keywords

diabetes mellitus, insulin analogues, lipoatrophy

INTRODUCTION

Insulin therapy is one of the iatrogenic causes of localized acquired lipoatrophy. In addition, acquired lipoatrophy may be a complication of local action due to other injectable agents such as corticosteroids, antibiotics, heparin, vaccines, and growth hormone. It may also occur as a result of an abscess, recurrent trauma (lipoatrophy semicircularis), localized scleroderma (morphea), cutaneous systemic lupus erythematosus, dermatomyositis, etc. Insulin-induced lipoatrophy is a rare skin complication in patients with diabetes mellitus.[1-3] In past years, when bovine and porcine insulin was used, its incidence used to be significantly higher, between 10-55%.[4] However, in the era of human insulin and insulin analogues, lipoatrophy occurred in approximately 3.6% of treated patients.[3,5,6] It is most common in young women with type 1 diabetes mellitus.[4,7] The reason for its occurrence may be: the use of the same insulin injection site over a long period of time, irregularly changing needles of injection devices, applying different analogue insulin to the same patient.[1,4,5]

CASE REPORT

We present a case of a 38-year-old woman with a 5-year history of type 1 diabetes mellitus. The disease occurred three months after the woman gave birth. It debuted with hyperglycemia, blood glucose levels up to 20 mmol/L and ketonuria. The patient did not perform an oral glucose tolerance test during pregnancy. It is therefore unknown if any disorder in carbohydrate metabolism had been present previously. She gave birth to a fetus with weight of 3850 g. Under the conditions of hospitalization, insulin therapy was initiated. The patient was on multiple dose injection therapy, using combination of regular human insulin and intermediate-acting in-

МЕДИЦИНСКИ УНИВЕРСИТЕТ – СОФИЯ
ЦЕНТРАЛНА МЕДИЦИНСКА БИБЛИОТЕКА

ЕНДОКРИННИ ЗАБОЛЯВАНИЯ

ENDOCRINE DISEASES

Оригинални статии, литературни обзори и реферати
на чуждестранни научни медицински публикации в областта на:
ЕНДОКРИНОЛОГИЯ И БОЛЕСТИ НА ОБМЯНАТА

Списанието се обработва в БД
БЪЛГАРСКА МЕДИЦИНСКА ЛИТЕРАТУРА

Ендокр. забол.
Endokr. zabol.

Год. XLIX **2020** **Брой 1**

СЪДЪРЖАНИЕ

ЕНДОКРИННИ ЗАБОЛЯВАНИЯ 1/2020

ISSN 0324-1475 УДК 616.4

Уредник *д-р М. Боянова*

Стилова редакция и корекция *В. Цъклева*

Страниране *Д. Големанова-Николова, М. Александрова*

Централна медицинска библиотека

1431 София, ул. "Св. Г. Софийски" № 1

✆ 02 952 05 16, e-mail: miravankova@abv.bg

ГЕСТАЦИОНЕН ДИАБЕТ И АСИСТИРАНИ РЕПРОДУКТИВНИ ТЕХНОЛОГИИ

М. Искилиева[1], Е. Ковачев[2], В. Яначкова[1], П. Чавеева[1]

[1]САГБАЛ "Д-р Щерев" – София

[2]СБАГАЛ „Проф. д-р Д. Стаматов" – Варна

GESTATIONAL DIABETES AND ASSISTED REPRODUCTIVE TECHNOLOGIES

M. Iskilieva[1], E. Kovachev[2], V. Yanachkova[1], P. Chaveeva[1]

[1]SAGBAL "D-r Shterev" – Sofia

[2]SBAGAL „Prof. D-r D. Stamatov" – Varna

Резюме. *През последните десетилетия броят на бременностите след асистирана репродукция се повиши в световен мащаб. Докладваната честота на гестационен диабет при бременни след асистирани репродуктивни технологии (АРТ) е по-висока (11-40%) в сравнение със спонтанно забременелите жени. Различни са факторите, които оказват влияние – от една страна, характеристиките на самите бременни (възраст, хормонален статус, тегло), от друга страна са специфичните параметри на АРТ процедурите. Целта на проучването е да се открие каква е честотата на гестационен диабет (ГД) при едноплодна бременност след спонтанно забременяване и след АРТ. Поставихме си задача да определим вероятните фактори, които имат връзка с това усложнение. Проучването е ретроспективно, проведено в периода 01.2013-12.2017 г. в Медицински комплекс „Д-р Щерев" – София. Обобщени са резултатите от общо 825 жени с едноплодни бременности, за които имаме точни и сигурни данни за протичането и изхода от бременността. Установихме, че честотата на ГД при пациентките след АРТ е по-висока (7,9%), в сравнение със спонтанно забременелите жени (3,4%), като разликата има статистическа достоверност, p < 0,006. Вероятни рискови фактори, свързани с общата характеристика на жените, включени в групата, са: възраст над 35 год., повишен BMI, патологични изменения на щитовидната жлеза, PCOS и преeклампсия. ГД при жените след АРТ е вероятен рисков фактор за развитие на макрозомия при плода. Гестационният диабет има сериозни и дългосрочни последици както за бебето, така и за майката, включително предразположение към затлъстяване, метаболитен синдром и диабет по-късно в живота. Ранното откриване и лечение могат значително да подобрят резултатите за жените с това състояние и техните бебета.*

Ключови думи*: усложнения на бременността, гестационен диабет, АРТ*

Abstract. *The number of pregnancies after assisted reproduction has increased globally. The reported incidence of gestational diabetes in pregnant women after assisted reproductive technology (ART) is higher (11-40%), compared to spontaneously pregnant women. There are various factors that influence the incidence of gestational diabetes – the characteristics of the pregnant woman (age, hormonal status, maternal body weight), as well as the specific parameters of the ART procedure being chosen. The purpose of this study is to investigate the incidence of gestational diabetes in a single pregnancy after spontaneous pregnancy and after ART. The task we set is to determine factors that influenced this complication. This is a retrospective study conducted between January, 2013 and December, 2017 at the "Dr. Shterev" Medical Complex, Sofia. The results from a total of 825 women with single pregnancies have been summarized, for which we have accurate and reliable data on the course and outcome of pregnancy. e found that the incidence of gestational diabetes in pregnant women after ART was higher (7.9%) than spontaneously pregnant women (3.4%), with statistical significant difference p < 0.006. Possible risk factors related to general characteristics of the women in the study groups are maternal age over 35 years, increased BMI, thyroid abnormalities, preeclampsia and PCOS. Gestational diabetes in women after ART is probably a risk factor for fetal macrosomia. Gestational diabetes has serious and long-lasting effects on both baby and mother, including predisposition to obesity, metabolic syndrome and diabetes later in life. Early detection and treatment can improve outcomes for women with this condition and their babies.*

Key words: *pregnancy complications, gestational diabetes, ART*

MEDINFO®

МЕДИЦИНСКО СПИСАНИЕ ЗА ЛЕКАРИТЕ В БЪЛГАРИЯ

ЦЕНА: 5.00 ЛВ.

21 ГОДИНИ

БРОНХОПУЛМОНАЛНА ДИСПЛАЗИЯ

ВЪТРЕЧЕРЕПНИ КРЪВОИЗЛИВИ ПРИ НОВОРОДЕНИ

БРЕМЕННОСТ И РАЖДАНЕ ПРИ ПАЦИЕНТКИ СЪС SARS-COV-2

ФЕВРУАРИ
02
2021
ISSN 2603-4158

фокус на броя

ПЕДИАТРИЯ, НЕОНАТОЛОГИЯ И АГ

MEDINFO®
МЕДИЦИНСКО СПИСАНИЕ НА ЛЕКАРИТЕ В БЪЛГАРИЯ

Издател
Марина Аврамова

Редактор на броя
доц. д-р Ралица Георгиева

Сътрудници
д-р Драгомира Угринова
Валентина Георгиева

Реклама
Цветелина Лалева
adv@medinfo.bg

Дизайн и предпечат
Татяна Гугуткова

Разпространение
Владимир Михов

Коректор
Финка Сиракова

Адрес на редакцията
МЕДИНФО ЕООД
гр. София 1111
ул. Едисон 50, ет. 1, оф. 3
тел./факс: 02 871 35 03; 02 872 11 23
e-mail: office@medinfo.bg
www.medinfo.bg

Съдържание **ФЕВРУАРИ 2021**

Цялото съдържание на сп. Мединфо можете да прочетете и онлайн на **www.medinfo.bg**

Брой 2, Година XXI, февруари 2021

Списанието се реферира в базата данни „Българска медицинска литература" и в Националния референтен списък на съвременните български научни издания с научно рецензиране

Излиза 12 пъти в годината

ISSN 1314-0345
ISSN online 2603-4158

Когато прочетете това списание, моля, предайте го и на друг.

СЪДЪРЖАНИЕ

» *Входна врата на инфекцията е лигавицата на гърлото, но може да бъде и кожата при т.нар. екстрабукална скарлатина – при лезии на кожата от изгаряния, наранявания, по-рядко измръзвания...* *стр. 32-34*

ПОЛЗИ ОТ УПОТРЕБАТА НА ЛИПОЗОМНА ФОРМА НА ВИТАМИН D ПРИ ЖЕНИ СЪС **СИНДРОМ НА ПОЛИКИСТОЗНИТЕ ЯЙЧНИЦИ И ИНСУЛИНОВА РЕЗИСТЕНТНОСТ**

В последните години, резултатите от редица проучвания показват, че дефицитът на витамин D (вит. D), освен в патогенезата на костно-метаболитните промени се свързва и с редица метаболитни отклонения, включително инсулиновата резистентност (ИР). Синдромът на поликистозните яйчниците (СПЯ) е едно от най-честите ендокринни нарушения при жените в репродуктивна възраст и е най-честата причина за ановулация. Характерно за него, е че протича с изява на средна и тежка (ИР). Хиперинсулинемията е една от основните компонентни в патогенезата на СПЯ и повишеното ниво на андрогенни хормони у жената. **Цел:** 1) да се сравни степента на повлияване на нивата на 25(OH)D3 след употреба на вит. D3, микрокапсулиран в липозоми спрямо конвенционална форма (перорални капки маслен разтвор) на холекалциферол при пациентки със СПЯ; 2) да се оцени ефектът на коригираните нива на 25(OH)D по отношение на индекса на телесна маса (ИТМ) и ИР при пациентки със СПЯ. **Материали и методи:** Проведено е моноцентрово, проспективно проучване, като са анализирани показателите на 70 жени със СПКЯ и дефицит на вит. D, посетили ендокринологичния кабинет на Медицински комплекс „Д-р Щерев“, гр. София. Пациентките са разделени в 2 групи по 35 жени, на базата на провежданото лечение с вит. D3. Анализирани бяха следните показатели: ИТМ, нива на 25(OH)D3, кръвна захар на гладно, имунореактивен инсулин на гладно (IRI), хомеостазен модел за оценка на ИР (HOMA-IR), изходно и три месеца след стартиране на терапията. **Резултати:** При пациентките, лекувани с липозомна форма на вит. D3, се наблюдават сигнификантно по-високи стойности на 25(OH)D3 на третия месец от началото на терапията спрямо контролната група пациентки (p=0.03). При тези пациентки са налице и сигнификантно по-ниски нива на IRI (p=0.023), както и по-нисък среден HOMA-IR индекс (p=0.021). **Заключение:** Резултатите от направения анализ показват, че пациентките, лекувани с липозомна форма на вит. D3, постигат по-бърза компенсация в нивата на 25(OH)D, като това от своя страна при равни условия, води до благоприятен ефект върху ИТМ, както и значително подобрение в метаболитния профил, в частност – инсулиновата чувствителност.

Веселина Яначкова[1], Радиана Стайнова[2], Светослав Стоев[3]

[1]САГБАЛ „Д-р Щерев“, гр. София
[2]Катедра „Фармацевтични науки“, Фармацевтичен факултет, МУ-Пловдив
[3]Катедра „Фармацевтични науки и социална фармация“, Фармацевтичен факултет, МУ-Плевен

Въведение

Витамин D е мастно-разтворим витамин и прохормон, с основна роля в костния метаболизъм, в частност – калциево-фосфорната хомеостаза. Наред с това обаче притежава и редица други извънкостни биологични ефекти, които се реализират благодарение на т.нар. рецептори за витамин D (VDR), разположени в различни тъкани, включително яйчник, ендометриум, млечни жлези, β-клетки на панкреаса, скелетни мускули, мастна тъкан и т.н. Установено е, че в яйчниковата тъкан вит. D3 стимулира продукцията на: прогестерон с 15%, естрадиол с 9% и естрон с 21%[1-4]. Приема се, че вит. D има физиологична роля в репродукцията, включително фоликулогенезата, лутеинизацията, посредством ефекта на антимюлеровия хормон (АМН) и производството на прогестерон в човешките гранулозни клетки. Вит. D3 повлиява глюкозната хомеостаза именно посредством рецепторите VDR в β-клетките на панкреаса и скелетните мускули. С всичко това се обяснява значението на витамин D по отношение на репродукцията,

The impact of a printed educational booklet on disease awareness in women with gestational diabetes

Radiana Staynova

R Staynova[1], E Vasileva[2,3], T Stankova[4], V Yanachkova[5]
[1]Department of Pharmaceutical Sciences, Faculty of Pharmacy, Medical University of Plovdiv, Plovdiv, Bulgaria
[2]Department of Propaedeutics of Internal Diseases, Faculty of Medicine, Medical University of Plovdiv, Plovdiv, Bulgaria
[3]Clinic of Endocrinology and Metabolic Disorders, University Hospital ''Kaspela'', Plovdiv, Bulgaria
[4]Department of Medical Biochemistry, Faculty of Pharmacy, Medical University of Plovdiv, Plovdiv, Bulgaria
[5]Dr Shterev Hospital, Sofia, Bulgaria
Contact: radiana.staynova@mu-plovdiv.bg

Background:
Gestational diabetes mellitus (GDM) is a major health concern which could lead to adverse pregnancy outcomes. Women with newly diagnosed GDM need additional information and education about this pregnancy complication. The aim of current study was to evaluate the impact of a printed educational booklet on disease awareness in women with GDM.
Methods:
One hundred and thirty-five pregnant women with newly diagnosed GDM who attended antenatal clinic were randomly assigned to either an intervention (n = 45) or a control group (n = 90). The women from intervention group received additional printed educational booklet about GDM management, while patients from the control group received standard care. The booklet includes information about risk factors, treatment alternatives, self-monitoring of blood glucose, nutritional management and lifestyle modification. After one month a self-administered written questionnaire was used for evaluation of women's knowledge about GDM management. Descriptive statistics and chi-square test were used to analyse the data.
Results:
Demographic and maternal characteristics were similar in both groups. The overall mean age was 32.3 years ranging from 24 to 45. The correct answers about diabetes complications awareness were reported in more than 50% of women in both groups. There was a significant difference in knowledge about the risk factors for GDM (85% in the intervention group versus 44% in the control group, $P < 0.001$). The number of correct answers was higher in the intervention group regarding GDM treatment (92% compared to 79% in the control group, $P < 0.01$), self-monitoring of blood glucose and outcomes of GDM ($P < 0.001$). The differences in nutritional knowledge were not statistically significant.
Conclusions:
The results from the study show that printed educational materials can improve patients' knowledge about GDM management as well as their health literacy and motivation.
Key messages:
- Providing a printed educational booklet in addition to standard pregnancy care for women with GDM may be beneficial for achieving therapeutic goals.
- The booklet used in this study could assist healthcare providers in improving the knowledge and educational process of women with GDM.

Drug Saf (2022) 45:1111–1327
https://doi.org/10.1007/s40264-022-01219-7

21st ISoP Annual Meeting "A New Era of Pharmacovigilance: Challenges and Opportunities" 20–23 September 2022 Verona, Italy

ABSTRACTS

21st ISoP Annual Meeting "A New Era of Pharmacovigilance: Challenges and Opportunities" 20–23 September 2022 Verona, Italy

The International Society of Pharmacovigilance (ISoP) aims to develop its activities on a worldwide basis towards supporting safer use of medicines in clinical practice.
ISoP encourages and supports the use of all types of information and methodologies in providing optimal drug treatment for patients. The Society is open to anyone interested in learning about better ways for patients to receive and use medicines safely, including academics, epidemiologists, medicines regulators, clinical pharmacologists, pharmaceutical industry representatives, practising clinicians, pharmacists, and other healthcare professionals.

Countries where there are ISoP members:

From Argentina to Zimbabwe, in countries in Europe to Asia, across the Americas, and from Australia to Africa, we have members in all five continents.
''By becoming a member of ISoP, you will have the opportunity to share your knowledge and ideas and to contribute to improving pharmacovigilance activities worldwide.''

Dr Mira Harrison-Woolrych, President of the International Society of Pharmacovigilance

ISoP Membership incentives include:

- Discounted online subscription to the *Drug Safety* journal
- Face-to-face meetings and webinars
- Annual conference and training courses
- Involvement in ISoP's Chapters and Special Interest Groups
- Opportunities for networking and other professional collaborations
- Regular newsletters and copies of the ISoP Star

For more information, please visit www.isoponline.org**,** the Society's official website.

International Society of Pharmacovigilance

ISoP Secretariat Ltd
140 Emmanuel Road, London SW12 0HS, UK
Tel and Fax: +44 (0)20 3256 0027
administration@isoponline.org

ISoP 2022 Local Organising Committee

Chair: Gianluca Trifirò, University of Verona (Italy)

- Annalisa Capuano, University of Campania "L. Vanvitelli" (Italy)
- Cristiano Chiamulera, University of Verona (Italy)
- Salvatore Crisafulli, University of Verona (Italy)
- Barbara De Bernardi, Pfizer (Italy)
- Carmen Ferrajolo, Italian Medicines Agency (Italy)
- Ylenia Ingrasciotta, University of Verona (Italy)
- Roberto Leone, University of Verona (Italy)
- Giuseppe Lippi, University of Verona (Italy)
- Anna Rosa Marra, Italian Drug Agency (Italy)
- Pietro Minuz, University of Verona (Italy)
- Ugo Moretti, University of Verona (Italy)

- Giovanna Scroccaro, Pharmaceutical and Medical Device Department, Veneto Region (Italy)
- Evelina Tacconelli, University of Verona (Italy)
- Marco Tuccori, University of Pisa, Chair of ISoP Italian Chapter (Italy)

ISoP 2022 Scientific Committee

Chair: Angela Caro Rojas, Pontificia Universidad Javeriana (Colombia)
Co-Chair: Gianluca Trifirò, University of Verona (Italy)

- Andrew Bate, GlaxoSmithKline (UK)
- Ghita Benabdallah, Centre Anti Poison et de Pharmacovigilance du Maroc (Morocco)
- Gianmario Candore, Bayer (Germany)
- Linda Härmark, Pharmacovigilance Centre Lareb (The Netherlands)
- Deirdre McCarthy, Gates MRI (USA)
- Antoine Pariente, University of Bordeaux (France)
- Saad Shakir, Drug Safety Research Unit (UK)
- Mónica Tarapués, Central University of Ecuador (Ecuador)

Abstracts reviewers

Chairs: Angela Caro Rojas, Pontificia Universidad Javeriana (Colombia) and Gianluca Trifirò, University of Verona (Italy)

Omar Aimer, Pfizer (Canada)
Mayada Alkhakany, Boehringer Ingelheim (Germany)
Thamir Alshammari, King Saud University (Saudi Arabia)
Elena Arzenton, University of Verona (Italy)
Andrew Bate, GlaxoSmithKline (UK)
Ghita Benabdallah, Centre Anti Poison et de Pharmacovigilance du Maroc (Morocco)
Melissa Bernal, Colombian Pharmacovigilance Association (Colombia)
Helen Byomire Nagije, National Drug Authority (Uganda)
Gianmario Candore, Bayer (Germany)
Rebecca Chandler, Coalition for Epidemic Preparedness Innovations (Sweden)
Salvatore Crisafulli, University of Verona (Italy)
Paola Maria Cutroneo, University Hospital of Messina (Italy)
Carmen Ferrajolo, Italian Medicines Agency (Italy)
Ulrich Hagemann, Germany
Linda Härmark, Pharmacovigilance Centre Lareb (The Netherlands)
Mira Harrison-Woolrych, ISoP President (New Zealand)
Ylenia Ingrasciotta, University of Verona (Italy)
Roberto Leone, University of Verona (Italy)
Lara Magro, University of Verona (Italy)
Deirdre McCarthy, Gates MRI (USA)
Ugo Moretti, University of Verona (Italy)
Antoine Pariente, University of Bordeaux (France)
Emanuel Raschi, University of Bologna (Italy)
Souad Skalli, Mohammed V University (Morocco)
Mónica Tarapués, Universidad Central del Ecuador (Ecuador)
Marco Tuccori, University of Pisa, Chair of ISoP Italian Chapter (Italy)
Manal Younus, Iraqi Pharmacovigilance Center (Iraq)
Zhang Li, Dongfang Hospital, Beijing University of Chinese Medicine (China)
Qun-Ying Yue, Uppsala Monitoring Centre (Sweden)
Patricia Zuluaga, Colombian Pharmacovigilance Association (Colombia)

ISoP 2022 Poster Prize Committee

Chair: Ghita Benabdallah, Centre Anti Poison et de Pharmacovigilance du Maroc (Morocco)

Helaine Carneiro Capucho, Brazilian Health Regulatory Agency (Anvisa) (Brazil)
Ylenia Ingrasciotta, University of Verona (Italy)

ISoP Executive Committee and Advisory Board 2019-2022

Disclaimer

ISoP requests a high standard of science is followed concerning publications and presentations at all its annual conferences and training courses. However, ISoP as a whole or its Advisory Board and Executive Committee (EC) or appointed Scientific Committees, or its members, do not take any responsibility for the completeness or correctness of data, or references given by authors in publications and presentations at ISoP scientific meetings.
It is not within the remit of ISoP or its advisory committees, to seek clarification or detailed information from authors about data in submitted abstracts. Moreover, it is not within the scope of ISoP and its committees to monitor compliance with any legal obligations, for example, reporting requirements or regulatory actions.

study will be a mixed-methods follow-up cross-sectional survey that follows focus group discussions of pharmacovigilance experts to establish attitudes to the reporting of ABR in pharmacovigilance and to explore the possibilities to improve reporting.
Results: As of 03/05/22 there are 22,853 reports in VigiBase for "ATC:J01—Antibacterials for systemic use", in combination with the SMQ "Lack of efficacy/effect". The number of reports and other baseline characteristics are not yet available for the other databases.
Conclusion: This project has the potential to increase the knowledge of how international pharmacovigilance systems can be beneficial to ABR surveillance. There is potential for the project to highlight areas of benefit from expanding or improving current pharmacovigilance practices in general, but it can also highlight the valuable information within pre-existing databases and how utilisation of the current systems can benefit those working within containment of global AMR.
References/Further Sources of Information

1. WHO. Global Action Plan on Antimicrobial Resistance. WHO, https://www.who.int/publications/i/item/9789241509763 (2016, accessed 3 May 2022).
2. Murray CJ, Ikuta KS, Sharara F, et al. Global burden of bacterial antimicrobial resistance in 2019: a systematic analysis. The Lancet 2022; 399: 629–655.
3. Habarugira JMV, Figueras A. Pharmacovigilance network as an additional tool for the surveillance of antimicrobial resistance. Pharmacoepidemiology and Drug Safety 2021; 30: 1123–1131.

P290
Medications Use While Breastfeeding—Prevalence and Attitude of Women

E. Liiv[1], K. Zagorodnikova[1], K. Monosova[1], O. Li[2]

[1]Almazov National Medical Research Centre, Clinical Pharmacology, Saint-Petersburg, Russian Federation; [2]Almazov National Medical Research Centre, Perinatal Centre, Saint-Petersburg, Russian Federation

Introduction: Human milk is considered the ideal nutrition for infants. Despite the increased attention for breastfeeding, information about drug use by breastfeeding women is scarce [1-2].
Objective: to evaluate the prevalence of medications use while breastfeeding and the associated factors.
Methods: Women who gave birth at the study hospital and stayed with their newborns were asked to participate in a structured interview. The questions included social status, health problems, breastfeeding status, prescribed medications, personal attitude to medications use during breastfeeding and related informational sources.
Results: By the time of the analysis 50 questionnaires were evaluated. Forty eight women had babies younger than 1 month. Mean age was 32±5 years (17 to 44). 37 (74%) had higher education. Three women were not breastfeeding due to the medications: cyclosporine, antithymocyte globulin; amitriptyline, chlorprothixene, sulpiride; ciprofloxacin. Among those breastfeeding the prevalence of medications use was 76%; 15 women (30%) received 1 medication; 23 (46%)—2 to 7 medications. These were: oxytocin (11 (22%)); heparins (9 (18%)); ferrous preparations (8 (16%)); vaginal antiinfectives (8 (16%)); methyldopa (7 (14%)); antibiotics (6 (12%)); warfarin, ketoprofen, nifedipine, perindopril, torasemide, spironolactone, herbal urinary antiseptic, sotalol and metoprolol were used by 1 woman each.
Thirty-six (72%) women considered breastfeeding necessary for the baby; seven (14%) believed it can easily be stopped. All women agreed that there are safe medications during breastfeeding while three of them believed the medications shouldn't be used; 31 women (62%) stated that even doctors don't know if it is safe to take medications while breastfeeding. The respondents told they would receive information from doctors (23–46%); Internet (11–22%); other women (10–20%); pharmacist (2–4%); family members (2–4%); professional associations (2–4%); 43 (86%) women reported that they can't get information about medications safety in breastfeeding.
Conclusion: During the early postpartum period, almost all women in our cohort were breastfeeding. No unnecessary interruption due to the medications was noted. 14% of the women were negative towards breastfeeding in general, but not due to possible need for medications. Despite general readiness to use medications while breastfeeding, most women noted lack of information about their safety, and less than half of them showed trust in doctor's advice. Although our cohort may not represent the general population, the results highlight high prevalence of medications use during breastfeeding and the clear lack of safety information.
References/Further Sources of Information

1. Schirm, E., Schwagermann, M., Tobi, H. et al. Drug use during breastfeeding. A survey from the Netherlands. Eur J Clin Nutr 58, 386–390 (2004). https://doi.org/10.1038/sj.ejcn.1601799 https://www.nature.com/articles/1601799.
2. Saha, M.R., Ryan, K. & Amir, L.H. Postpartum women's use of medicines and breastfeeding practices: a systematic review. Int Breastfeed J 10, 28 (2015). https://doi.org/10.1186/s13006-015-0053-6 https://internationalbreastfeedingjournal.biomedcentral.com/articles/10.1186/s13006-015-0053-6#Sec21.
3. Radwan H, Fakhry R, Metheny N, Baniissa W, Faris MAIE, Obaid RS, Al Marzooqi S, Al Ghazal H, ElHalik M, Dennis CL. Prevalence and multivariable predictors of breastfeeding outcomes in the United Arab Emirates: a prospective cohort study. Int Breastfeed J. 2021 Oct 12;16(1):79. https://doi.org/10.1186/s13006-021-00428-7. PMID: 34641934; PMCID: PMC8507212. https://pubmed.ncbi.nlm.nih.gov/34641934/.

P291
Comparative Safety of Metformin and Insulin in Gestational Diabetes—a Retrospective, Case-Control Study

V. Yanachkova[1], R. Staynova[2], Z. Kamenov[3,4]

[1]Specialised Hospital for Active Treatment of Obstetrics and Gynaecology "Dr Shterev", Department of Endocrinology, Sofia, Bulgaria; [2]Medical University of Plovdiv-Faculty of Pharmacy, Department of Pharmaceutical Sciences, Plovdiv, Bulgaria; [3]Medical University of Sofia, Department of Internal Medicine, Sofia, Bulgaria; [4]University Hospital "Alexandrovska", Clinic of Endocrinology, Sofia, Bulgaria

Introduction: The incidence of gestational diabetes mellitus (GDM) is increasing worldwide [1]. Untreated or insufficiently treated GDM is associated with adverse maternal and neonatal outcomes and a predisposition to obesity and type 2 diabetes in the offspring in later life [2, 3]. If appropriate glycemic control is not achieved by diet and lifestyle changes, pharmacological therapy should be started. Although Insulin is considered first-line therapy, the current evidence shows that metformin could be a promising and safe option for managing GDM [4].

Objective: To compare and assess the maternal and neonatal outcomes in women with GDM treated with metformin or insulin.
Methods: A retrospective, case-control study was carried out using the electronic database of OB/GYN Hospital "Dr. Shterev", Sofia, Bulgaria. We analyzed the medical records of 110 women diagnosed with GDM, who gave birth in the period between January 2017–January 2019. Patients were divided into two groups, depending on the treatment plan—metformin group (n = 70) and insulin group (n = 40). We compared maternal characteristics, including fasting plasma glucose (FPG) and glycated hemoglobin (HbA1c), measured at diagnosis of GDM, and at the end of pregnancy. A comparative analysis of the maternal and neonatal outcomes between the two groups was also performed.
Results: The mean FPG levels at diagnosis of GDM were significantly lower in the metformin-treated group compared to women receiving insulin therapy (5.72 vs. 6.69 mmol/L, $p < 0.001$). The same results were found when the baseline HbA1c levels were compared (5.61% vs. 6.29%, $p < 0.001$). There was no difference between the metformin-treated group and the insulin-treated group regarding the mode of conception, mode of delivery, gestational weeks at delivery, and incidence of neonatal hypoglycemia. The neonates of the mothers treated with metformin were with significantly lower mean birthweight comparing those in the insulin group (3154 vs. 3421 g, $p = 0.03$). The incidence of macrosomia was higher in the insulin group than in the metformin group ($p < 0.01$). There were no differences between the groups regarding Apgar scores and small-for-gestational-age neonates.
Conclusion: The results of this retrospective study suggest that metformin could be a safe and effective alternative to insulin in the treatment of GDM. No short-term complications have been observed in neonates born from women treated with metformin.
References/Further Sources of Information

1. American Diabetes Association. 14. Management of diabetes in pregnancy: standards of medical care in diabetes-2021. Diabetes Care. 2021;44(Suppl 1):S200–10.
2. HAPO Study Cooperative Research Group, Metzger BE, Lowe LP, Dyer AR, Trimble ER, Chaovarindr U, Coustan DR, Hadden DR, McCance DR, Hod M, McIntyre HD, Oats JJ, Persson B, Rogers MS, Sacks DA. Hyperglycemia and adverse pregnancy outcomes. N Engl J Med. 2008;358(19):1991–2002.
3. Koning SH, Hoogenberg K, Lutgers HL, van den Berg PP, Wolffenbuttel BH. Gestational Diabetes Mellitus: current knowledge and unmet needs. J Diabetes. 2016;8(6):770–781.
4. Brown J, Martis R, Hughes B, Rowan J, Crowther CA. Oral antidiabetic pharmacological therapies for the treatment of women with gestational diabetes. Cochrane Database Syst Rev. 2017;1:CD011967.

P293
Breastfeeding Women's Knowledge Toward Spontaneous Reporting of Adverse Drug Reactions—a Pilot Study from Bulgaria

R. Staynova[1], V. Getova[2], E. Gavazova[1], D. G. Kafalova[1]

[1]Medical University of Plovdiv-Faculty of Pharmacy, Department of Pharmaceutical Sciences, Plovdiv, Bulgaria; [2]Medical University of Sofia-Faculty of Pharmacy, Department of Organization and Economics of Pharmacy, Sofia, Bulgaria

Introduction: It is well-known fact that breastfeeding is beneficial for both the mother and infant. [1] Many breastfeeding women require medications. Almost all medications are excreted into breast milk to some extent and this may pose a risk to a breastfed infant. [2, 3] In addition, this may raise questions about the safety of commonly used medications during breastfeeding.
Objective: To assess Bulgarian breastfeeding women's knowledge and experience regarding spontaneous reporting of adverse drug reactions (ADRs).
Methods: A cross-sectional, questionnaire-based study was performed between June 2021 and September 2021. A pre-validated, anonymous questionnaire was distributed among breastfeeding women using a web-based platform. Data on demographics of participants, knowledge, and factors that may influence spontaneous reporting of ADRs were collected. Descriptive statistics and a chi-square test were used to analyze the data.
Results: A total of 96 breastfeeding women completed the survey. The overall mean age was 29.3 years ranging from 24 to 43. The majority of breastfeeding women reported a lack of knowledge regarding the ADRs reporting process. Only 25% of survey participants were aware of the possibility of reporting ADRs directly to the Bulgarian Drug Agency and this was significantly associated with education level ($P<0.001$). ADRs reporting rate during breastfeeding was poor (12.5%.) For the majority of women, the primary source of information about drug safety during breastfeeding were the health care professionals (92.7%) followed by a package leaflet (53.1%) and social media, e.g., discussion forums (47.9%). The majority of surveyed women (84.4%) reported the need for additional information on drug safety during breastfeeding.
Conclusion: The results from this suggest that Bulgarian breastfeeding women have insufficient knowledge regarding spontaneous ADRs reporting. Educational campaigns and additional information are needed to increase breastfeeding women's awareness of drug safety, self-medication and the ADRs reporting process.
References/Further Sources of Information

1. Westerfield KL, Koenig K, Oh RC. Breastfeeding: common questions and answers. American family physician. 2018;98(6):368–73.
2. Rowe H, Baker T, Hale TW. Maternal medication, drug use, and breastfeeding. Child and Adolescent Psychiatric Clinics. 2015;24(1):1–20.
3. Soussan C, Gouraud A, Portolan G, Jean-Pastor MJ, Pecriaux C, Montastruc JL, Damase-Michel C, Lacroix I. Drug-induced adverse reactions via breastfeeding: a descriptive study in the French Pharmacovigilance Database. European journal of clinical pharmacology. 2014;70(11):1361–6.

P295
Drug-Induced Liver Injury (DILI) and Ulipristal: A Cautionary Tale

R. A. Baião[1,2], J. P. M. Fernandes[2], C. D. Santos[1,2], A. S. D. Martins[2], M. S. S. d. C. L. Silva[2]

[1]Faculdade de Medicina da Universidade de Lisboa, Laboratory of Clinical Pharmacology and Therapeutics, Lisboa, Portugal; [2]INFARMED-National Authority of Medicines and Health Products-I.P., Directorate for Risk Management for Medicines, Lisboa, Portugal

Introduction: In September of 2017, the French Medicines Agency (ANSM) received a case of fulminant hepatitis leading to hepatic transplantation in a patient treated with Ulipristal for uterine fibroids. Cumulatively, 3 cases of liver transplant associated with Ulipristal

Results: A total of 12 RCTs were included in this systematic review (n=1,311) and 8 RCTs (n=366) were included in the meta-analysis. The use of CGM was associated with a significant reduction in HbA1c (%) (weighted mean difference rate -0.40% (95% CI -0.55; -0.25, p<0.00001). Overall, only four of the 11 studies reported higher user satisfaction in the CGM group than in the SMBG group, with the remaining six showing no difference and one showing higher satisfaction with SMBG use. Only three RCTs reported weight and blood pressure, and no between-group differences were observed.

Discussion: In patients with type 2 diabetes, CGM use was associated with better HbA1c control, but no change in weight or blood pressure. User satisfaction with CGM use is an important factor, which requires more sophisticated surveys through different instruments such as the Diabetes Therapy Satisfaction Questionnaire or the GM Satisfaction Scale/Survey. It is important to promote the use of CGM among patients with type 2 diabetes. Further RCTs on this topic are needed to measure more outcomes to assess comprehensive diabetes management.

Diabetes Research and Clinical Practice 186S (2022) 109553
https://doi.org/10.1016/j.diabres.2022.109553

IDF21-0488

A comparison of healthy lifestyles between pregnant women with gestational diabetes and pre-existing type 2 diabetes

R. Staynova[a], T. Stankova[b], V. Yanachkova[c], G. Delcheva[b]

[a] *Medical University of Plovdiv, Faculty of Pharmacy, Department of Pharmaceutical Sciences, Plovdiv, Bulgaria*
[b] *Medical University of Plovdiv, Faculty of Pharmacy, Department of Medical Biochemistry, Plovdiv, Bulgaria*
[c] *Specialised Hospital for Active Treatment of Obstetrics and Gynaecology "Dr Shterev", Department of Endocrinology, Sofia, Bulgaria*

Background: Pregnant women with diabetes, have to make important changes in their lifestyle in order to maintain normal values of blood glucose. Hyperglycemia during pregnancy could have adverse effects on both the mother and the fetus. A healthy balanced diet, moderate physical activity and frequent self-monitoring of blood glucose are essential elements of successful diabetes management during pregnancy.

Aim: To assess and compare lifestyles of pregnant women with gestational diabetes mellitus (GDM) and pre-existing type 2 diabetes mellitus (T2DM).

Method: We conducted a cross-sectional, questionnaire-based study among pregnant women with GDM and pre-existing T2DM, who were referred to the endocrinology departments of antenatal clinics in Sofia and Plovdiv, Bulgaria. The study was carried out between August 2018 and March 2019. The exclusion criteria were as follows: pregnant women with type 1 DM; multiple pregnancies; age under 18 years; women unable to write and understand Bulgarian. Data was collected using a self-administered pre-validated questionnaire. Participants reported their demographics (age, education level, occupation, marital status), obstetric characteristics, family history of DM, nutritional habits, physical activity and frequency of self-monitoring of blood glucose. Information regarding pre-pregnancy body mass index (BMI) and glycemic control (HbA1c) was also collected. A comparative analysis was performed on the two groups of pregnant women. Descriptive statistics and Pearson's chi-squared test were used to analyze the data. Written informed consent was obtained from all study participants.

Results: A total of 198 pregnant women (112 with GDM and 86 with T2DM) agreed to participate in the survey. During the study, all of the women were in the third trimester of pregnancy. Differences were not reported between the two groups regarding demographic and obstetric characteristics (p>0.05). The mean age of the study participants was 31.2 years (range, 23-41 years). The mean pre-pregnancy BMI was 25.3±5.1 kg/m^2. Based on reported pre-pregnancy BMI, 39.5% of women with T2DM were classified as overweight and obese, compared to 35.7% of the women in the GDM group. Significant differences were observed regarding HbA1c levels between pregnant women with T2DM and GDM (6.9% vs 5.7%, p<0.001). Daily self-monitoring of blood glucose was reported by 81.4% of women with T2DM, in contrast with 31.2% of women in the GDM group (p<0.001). There were no significant differences regarding dietary habits. The prevalence of a sedentary lifestyle was 52.3% in pregnant women with T2DM and 40.1% in the GDM group. Physical activity habits were similar between both groups. Walking was the most preferred type of exercise.

Discussion: Our findings suggested that there is a need for additional information and lifestyle advice regarding healthy behaviors, adequate nutrition intake, weight management and physical activity. Providing additional diabetes self-management education can improve health outcomes in pregnant women with diabetes.

Diabetes Research and Clinical Practice 186S (2022) 109554
https://doi.org/10.1016/j.diabres.2022.109554

IDF21-0491

The effects of HIIT and MICT on glycemic control and serum levels of fetuin-A in type 2 diabetic patients

S. Moharamzadeh[a], M. Torabi[b], B. Mirzaei[b]

[a] *Shahid Rajaei University, Physical Education and Sport Science, Tehran, Iran*
[b] *Guilan University, Physical Education and Sport Science, Rast, Iran*

Background: Regular physical activity is a key element in the management of type 2 diabetes. Cytokines play a central role in the therapeutic effects of exercise. Fetuin-A, as a hepatokine, with known effects on carbohydrate metabolism, is affected by exercise and possibly its intensity in healthy individuals and increased in plasma of patients with type 2 diabetes.

Aim: The aim of this study was to compare moderate-intensity continuous and high-intensity interval training on some glycemic control and plasma levels of fetuin-A in patients with type 2 diabetes.

Method: Forty-five men with type 2 diabetes (45.9 ± 4.2 years old) were randomly divided into three equal groups: control, high-intensity interval training (HIIT), and moderate-intensity continuous training (MICT). HIIT included 4 intervals of 4 minutes of high-intensity cycling with 85-95 percent of VO2max separated by 3-minutes of active rest. The MICT group was cycling for 47 minutes with 60-70 percent of VO2max.

Results: The results are presented in the Table.

Discussion: Both HIIT and MICT have possible advantages in glycemic control of type 2 diabetic patients. Although, in this

Drug Saf (2022) 45:1111–1327
https://doi.org/10.1007/s40264-022-01219-7

21st ISoP Annual Meeting "A New Era of Pharmacovigilance: Challenges and Opportunities" 20–23 September 2022 Verona, Italy

ABSTRACTS

21st ISoP Annual Meeting "A New Era of Pharmacovigilance: Challenges and Opportunities" 20–23 September 2022 Verona, Italy

The International Society of Pharmacovigilance (ISoP) aims to develop its activities on a worldwide basis towards supporting safer use of medicines in clinical practice.
ISoP encourages and supports the use of all types of information and methodologies in providing optimal drug treatment for patients. The Society is open to anyone interested in learning about better ways for patients to receive and use medicines safely, including academics, epidemiologists, medicines regulators, clinical pharmacologists, pharmaceutical industry representatives, practising clinicians, pharmacists, and other healthcare professionals.

Countries where there are ISoP members:

From Argentina to Zimbabwe, in countries in Europe to Asia, across the Americas, and from Australia to Africa, we have members in all five continents.
''By becoming a member of ISoP, you will have the opportunity to share your knowledge and ideas and to contribute to improving pharmacovigilance activities worldwide.''

Dr Mira Harrison-Woolrych, President of the International Society of Pharmacovigilance

ISoP Membership incentives include:

- Discounted online subscription to the *Drug Safety* journal
- Face-to-face meetings and webinars
- Annual conference and training courses
- Involvement in ISoP's Chapters and Special Interest Groups
- Opportunities for networking and other professional collaborations
- Regular newsletters and copies of the ISoP Star

For more information, please visit www.isoponline.org**,** the Society's official website.

International Society of Pharmacovigilance

ISoP Secretariat Ltd
140 Emmanuel Road, London SW12 0HS, UK
Tel and Fax: +44 (0)20 3256 0027
administration@isoponline.org

ISoP 2022 Local Organising Committee

Chair: Gianluca Trifirò, University of Verona (Italy)

- Annalisa Capuano, University of Campania "L. Vanvitelli" (Italy)
- Cristiano Chiamulera, University of Verona (Italy)
- Salvatore Crisafulli, University of Verona (Italy)
- Barbara De Bernardi, Pfizer (Italy)
- Carmen Ferrajolo, Italian Medicines Agency (Italy)
- Ylenia Ingrasciotta, University of Verona (Italy)
- Roberto Leone, University of Verona (Italy)
- Giuseppe Lippi, University of Verona (Italy)
- Anna Rosa Marra, Italian Drug Agency (Italy)
- Pietro Minuz, University of Verona (Italy)
- Ugo Moretti, University of Verona (Italy)

- Giovanna Scroccaro, Pharmaceutical and Medical Device Department, Veneto Region (Italy)
- Evelina Tacconelli, University of Verona (Italy)
- Marco Tuccori, University of Pisa, Chair of ISoP Italian Chapter (Italy)

ISoP 2022 Scientific Committee

Chair: Angela Caro Rojas, Pontificia Universidad Javeriana (Colombia)
Co-Chair: Gianluca Trifirò, University of Verona (Italy)

- Andrew Bate, GlaxoSmithKline (UK)
- Ghita Benabdallah, Centre Anti Poison et de Pharmacovigilance du Maroc (Morocco)
- Gianmario Candore, Bayer (Germany)
- Linda Härmark, Pharmacovigilance Centre Lareb (The Netherlands)
- Deirdre McCarthy, Gates MRI (USA)
- Antoine Pariente, University of Bordeaux (France)
- Saad Shakir, Drug Safety Research Unit (UK)
- Mónica Tarapués, Central University of Ecuador (Ecuador)

Abstracts reviewers

Chairs: Angela Caro Rojas, Pontificia Universidad Javeriana (Colombia) and Gianluca Trifirò, University of Verona (Italy)

Omar Aimer, Pfizer (Canada)
Mayada Alkhakany, Boehringer Ingelheim (Germany)
Thamir Alshammari, King Saud University (Saudi Arabia)
Elena Arzenton, University of Verona (Italy)
Andrew Bate, GlaxoSmithKline (UK)
Ghita Benabdallah, Centre Anti Poison et de Pharmacovigilance du Maroc (Morocco)
Melissa Bernal, Colombian Pharmacovigilance Association (Colombia)
Helen Byomire Nagije, National Drug Authority (Uganda)
Gianmario Candore, Bayer (Germany)
Rebecca Chandler, Coalition for Epidemic Preparedness Innovations (Sweden)
Salvatore Crisafulli, University of Verona (Italy)
Paola Maria Cutroneo, University Hospital of Messina (Italy)
Carmen Ferrajolo, Italian Medicines Agency (Italy)
Ulrich Hagemann, Germany
Linda Härmark, Pharmacovigilance Centre Lareb (The Netherlands)
Mira Harrison-Woolrych, ISoP President (New Zealand)
Ylenia Ingrasciotta, University of Verona (Italy)
Roberto Leone, University of Verona (Italy)
Lara Magro, University of Verona (Italy)
Deirdre McCarthy, Gates MRI (USA)
Ugo Moretti, University of Verona (Italy)
Antoine Pariente, University of Bordeaux (France)
Emanuel Raschi, University of Bologna (Italy)
Souad Skalli, Mohammed V University (Morocco)
Mónica Tarapués, Universidad Central del Ecuador (Ecuador)
Marco Tuccori, University of Pisa, Chair of ISoP Italian Chapter (Italy)
Manal Younus, Iraqi Pharmacovigilance Center (Iraq)
Zhang Li, Dongfang Hospital, Beijing University of Chinese Medicine (China)
Qun-Ying Yue, Uppsala Monitoring Centre (Sweden)
Patricia Zuluaga, Colombian Pharmacovigilance Association (Colombia)

ISoP 2022 Poster Prize Committee

Chair: Ghita Benabdallah, Centre Anti Poison et de Pharmacovigilance du Maroc (Morocco)

Helaine Carneiro Capucho, Brazilian Health Regulatory Agency (Anvisa) (Brazil)
Ylenia Ingrasciotta, University of Verona (Italy)

ISoP Executive Committee and Advisory Board 2019-2022

Disclaimer

ISoP requests a high standard of science is followed concerning publications and presentations at all its annual conferences and training courses. However, ISoP as a whole or its Advisory Board and Executive Committee (EC) or appointed Scientific Committees, or its members, do not take any responsibility for the completeness or correctness of data, or references given by authors in publications and presentations at ISoP scientific meetings.
It is not within the remit of ISoP or its advisory committees, to seek clarification or detailed information from authors about data in submitted abstracts. Moreover, it is not within the scope of ISoP and its committees to monitor compliance with any legal obligations, for example, reporting requirements or regulatory actions.

study will be a mixed-methods follow-up cross-sectional survey that follows focus group discussions of pharmacovigilance experts to establish attitudes to the reporting of ABR in pharmacovigilance and to explore the possibilities to improve reporting.
Results: As of 03/05/22 there are 22,853 reports in VigiBase for "ATC:J01—Antibacterials for systemic use", in combination with the SMQ "Lack of efficacy/effect". The number of reports and other baseline characteristics are not yet available for the other databases.
Conclusion: This project has the potential to increase the knowledge of how international pharmacovigilance systems can be beneficial to ABR surveillance. There is potential for the project to highlight areas of benefit from expanding or improving current pharmacovigilance practices in general, but it can also highlight the valuable information within pre-existing databases and how utilisation of the current systems can benefit those working within containment of global AMR.
References/Further Sources of Information

1. WHO. Global Action Plan on Antimicrobial Resistance. WHO, https://www.who.int/publications/i/item/9789241509763 (2016, accessed 3 May 2022).
2. Murray CJ, Ikuta KS, Sharara F, et al. Global burden of bacterial antimicrobial resistance in 2019: a systematic analysis. The Lancet 2022; 399: 629–655.
3. Habarugira JMV, Figueras A. Pharmacovigilance network as an additional tool for the surveillance of antimicrobial resistance. Pharmacoepidemiology and Drug Safety 2021; 30: 1123–1131.

P290
Medications Use While Breastfeeding—Prevalence and Attitude of Women

E. Liiv[1], K. Zagorodnikova[1], K. Monosova[1], O. Li[2]

[1]Almazov National Medical Research Centre, Clinical Pharmacology, Saint-Petersburg, Russian Federation; [2]Almazov National Medical Research Centre, Perinatal Centre, Saint-Petersburg, Russian Federation

Introduction: Human milk is considered the ideal nutrition for infants. Despite the increased attention for breastfeeding, information about drug use by breastfeeding women is scarce [1-2].
Objective: to evaluate the prevalence of medications use while breastfeeding and the associated factors.
Methods: Women who gave birth at the study hospital and stayed with their newborns were asked to participate in a structured interview. The questions included social status, health problems, breastfeeding status, prescribed medications, personal attitude to medications use during breastfeeding and related informational sources.
Results: By the time of the analysis 50 questionnaires were evaluated. Forty eight women had babies younger than 1 month. Mean age was 32±5 years (17 to 44). 37 (74%) had higher education. Three women were not breastfeeding due to the medications: cyclosporine, antithymocyte globulin; amitriptyline, chlorprothixene, sulpiride; ciprofloxacin. Among those breastfeeding the prevalence of medications use was 76%; 15 women (30%) received 1 medication; 23 (46%)—2 to 7 medications. These were: oxytocin (11 (22%)); heparins (9 (18%)); ferrous preparations (8 (16%)); vaginal antiinfectives (8 (16%)); methyldopa (7 (14%)); antibiotics (6 (12%)); warfarin, ketoprofen, nifedipine, perindopril, torasemide, spironolactone, herbal urinary antiseptic, sotalol and metoprolol were used by 1 woman each.
Thirty-six (72%) women considered breastfeeding necessary for the baby; seven (14%) believed it can easily be stopped. All women agreed that there are safe medications during breastfeeding while three of them believed the medications shouldn't be used; 31 women (62%) stated that even doctors don't know if it is safe to take medications while breastfeeding. The respondents told they would receive information from doctors (23–46%); Internet (11–22%); other women (10–20%); pharmacist (2–4%); family members (2–4%); professional associations (2–4%); 43 (86%) women reported that they can't get information about medications safety in breastfeeding.
Conclusion: During the early postpartum period, almost all women in our cohort were breastfeeding. No unnecessary interruption due to the medications was noted. 14% of the women were negative towards breastfeeding in general, but not due to possible need for medications. Despite general readiness to use medications while breastfeeding, most women noted lack of information about their safety, and less than half of them showed trust in doctor's advice. Although our cohort may not represent the general population, the results highlight high prevalence of medications use during breastfeeding and the clear lack of safety information.
References/Further Sources of Information

1. Schirm, E., Schwagermann, M., Tobi, H. et al. Drug use during breastfeeding. A survey from the Netherlands. Eur J Clin Nutr 58, 386–390 (2004). https://doi.org/10.1038/sj.ejcn.1601799 https://www.nature.com/articles/1601799.
2. Saha, M.R., Ryan, K. & Amir, L.H. Postpartum women's use of medicines and breastfeeding practices: a systematic review. Int Breastfeed J 10, 28 (2015). https://doi.org/10.1186/s13006-015-0053-6 https://internationalbreastfeedingjournal.biomedcentral.com/articles/10.1186/s13006-015-0053-6#Sec21.
3. Radwan H, Fakhry R, Metheny N, Baniissa W, Faris MAIE, Obaid RS, Al Marzooqi S, Al Ghazal H, ElHalik M, Dennis CL. Prevalence and multivariable predictors of breastfeeding outcomes in the United Arab Emirates: a prospective cohort study. Int Breastfeed J. 2021 Oct 12;16(1):79. https://doi.org/10.1186/s13006-021-00428-7. PMID: 34641934; PMCID: PMC8507212. https://pubmed.ncbi.nlm.nih.gov/34641934/.

P291
Comparative Safety of Metformin and Insulin in Gestational Diabetes—a Retrospective, Case-Control Study

V. Yanachkova[1], R. Staynova[2], Z. Kamenov[3,4]

[1]Specialised Hospital for Active Treatment of Obstetrics and Gynaecology "Dr Shterev", Department of Endocrinology, Sofia, Bulgaria; [2]Medical University of Plovdiv-Faculty of Pharmacy, Department of Pharmaceutical Sciences, Plovdiv, Bulgaria; [3]Medical University of Sofia, Department of Internal Medicine, Sofia, Bulgaria; [4]University Hospital "Alexandrovska", Clinic of Endocrinology, Sofia, Bulgaria

Introduction: The incidence of gestational diabetes mellitus (GDM) is increasing worldwide [1]. Untreated or insufficiently treated GDM is associated with adverse maternal and neonatal outcomes and a predisposition to obesity and type 2 diabetes in the offspring in later life [2, 3]. If appropriate glycemic control is not achieved by diet and lifestyle changes, pharmacological therapy should be started. Although Insulin is considered first-line therapy, the current evidence shows that metformin could be a promising and safe option for managing GDM [4].

Objective: To compare and assess the maternal and neonatal outcomes in women with GDM treated with metformin or insulin.
Methods: A retrospective, case-control study was carried out using the electronic database of OB/GYN Hospital "Dr. Shterev", Sofia, Bulgaria. We analyzed the medical records of 110 women diagnosed with GDM, who gave birth in the period between January 2017–January 2019. Patients were divided into two groups, depending on the treatment plan—metformin group (n = 70) and insulin group (n = 40). We compared maternal characteristics, including fasting plasma glucose (FPG) and glycated hemoglobin (HbA1c), measured at diagnosis of GDM, and at the end of pregnancy. A comparative analysis of the maternal and neonatal outcomes between the two groups was also performed.
Results: The mean FPG levels at diagnosis of GDM were significantly lower in the metformin-treated group compared to women receiving insulin therapy (5.72 vs. 6.69 mmol/L, $p < 0.001$). The same results were found when the baseline HbA1c levels were compared (5.61% vs. 6.29%, $p < 0.001$). There was no difference between the metformin-treated group and the insulin-treated group regarding the mode of conception, mode of delivery, gestational weeks at delivery, and incidence of neonatal hypoglycemia. The neonates of the mothers treated with metformin were with significantly lower mean birthweight comparing those in the insulin group (3154 vs. 3421 g, $p = 0.03$). The incidence of macrosomia was higher in the insulin group than in the metformin group ($p < 0.01$). There were no differences between the groups regarding Apgar scores and small-for-gestational-age neonates.
Conclusion: The results of this retrospective study suggest that metformin could be a safe and effective alternative to insulin in the treatment of GDM. No short-term complications have been observed in neonates born from women treated with metformin.
References/Further Sources of Information

1. American Diabetes Association. 14. Management of diabetes in pregnancy: standards of medical care in diabetes-2021. Diabetes Care. 2021;44(Suppl 1):S200–10.
2. HAPO Study Cooperative Research Group, Metzger BE, Lowe LP, Dyer AR, Trimble ER, Chaovarindr U, Coustan DR, Hadden DR, McCance DR, Hod M, McIntyre HD, Oats JJ, Persson B, Rogers MS, Sacks DA. Hyperglycemia and adverse pregnancy outcomes. N Engl J Med. 2008;358(19):1991–2002.
3. Koning SH, Hoogenberg K, Lutgers HL, van den Berg PP, Wolffenbuttel BH. Gestational Diabetes Mellitus: current knowledge and unmet needs. J Diabetes. 2016;8(6):770–781.
4. Brown J, Martis R, Hughes B, Rowan J, Crowther CA. Oral antidiabetic pharmacological therapies for the treatment of women with gestational diabetes. Cochrane Database Syst Rev. 2017;1:CD011967.

P293
Breastfeeding Women's Knowledge Toward Spontaneous Reporting of Adverse Drug Reactions—a Pilot Study from Bulgaria

R. Staynova[1], V. Getova[2], E. Gavazova[1], D. G. Kafalova[1]

[1]Medical University of Plovdiv-Faculty of Pharmacy, Department of Pharmaceutical Sciences, Plovdiv, Bulgaria; [2]Medical University of Sofia-Faculty of Pharmacy, Department of Organization and Economics of Pharmacy, Sofia, Bulgaria

Introduction: It is well-known fact that breastfeeding is beneficial for both the mother and infant. [1] Many breastfeeding women require medications. Almost all medications are excreted into breast milk to some extent and this may pose a risk to a breastfed infant. [2, 3] In addition, this may raise questions about the safety of commonly used medications during breastfeeding.
Objective: To assess Bulgarian breastfeeding women's knowledge and experience regarding spontaneous reporting of adverse drug reactions (ADRs).
Methods: A cross-sectional, questionnaire-based study was performed between June 2021 and September 2021. A pre-validated, anonymous questionnaire was distributed among breastfeeding women using a web-based platform. Data on demographics of participants, knowledge, and factors that may influence spontaneous reporting of ADRs were collected. Descriptive statistics and a chi-square test were used to analyze the data.
Results: A total of 96 breastfeeding women completed the survey. The overall mean age was 29.3 years ranging from 24 to 43. The majority of breastfeeding women reported a lack of knowledge regarding the ADRs reporting process. Only 25% of survey participants were aware of the possibility of reporting ADRs directly to the Bulgarian Drug Agency and this was significantly associated with education level ($P<0.001$). ADRs reporting rate during breastfeeding was poor (12.5%.) For the majority of women, the primary source of information about drug safety during breastfeeding were the health care professionals (92.7%) followed by a package leaflet (53.1%) and social media, e.g., discussion forums (47.9%). The majority of surveyed women (84.4%) reported the need for additional information on drug safety during breastfeeding.
Conclusion: The results from this suggest that Bulgarian breastfeeding women have insufficient knowledge regarding spontaneous ADRs reporting. Educational campaigns and additional information are needed to increase breastfeeding women's awareness of drug safety, self-medication and the ADRs reporting process.
References/Further Sources of Information

1. Westerfield KL, Koenig K, Oh RC. Breastfeeding: common questions and answers. American family physician. 2018;98(6):368–73.
2. Rowe H, Baker T, Hale TW. Maternal medication, drug use, and breastfeeding. Child and Adolescent Psychiatric Clinics. 2015;24(1):1–20.
3. Soussan C, Gouraud A, Portolan G, Jean-Pastor MJ, Pecriaux C, Montastruc JL, Damase-Michel C, Lacroix I. Drug-induced adverse reactions via breastfeeding: a descriptive study in the French Pharmacovigilance Database. European journal of clinical pharmacology. 2014;70(11):1361–6.

P295
Drug-Induced Liver Injury (DILI) and Ulipristal: A Cautionary Tale

R. A. Baião[1,2], J. P. M. Fernandes[2], C. D. Santos[1,2], A. S. D. Martins[2], M. S. S. d. C. L. Silva[2]

[1]Faculdade de Medicina da Universidade de Lisboa, Laboratory of Clinical Pharmacology and Therapeutics, Lisboa, Portugal; [2]INFARMED-National Authority of Medicines and Health Products-I.P., Directorate for Risk Management for Medicines, Lisboa, Portugal

Introduction: In September of 2017, the French Medicines Agency (ANSM) received a case of fulminant hepatitis leading to hepatic transplantation in a patient treated with Ulipristal for uterine fibroids. Cumulatively, 3 cases of liver transplant associated with Ulipristal

GP News

www.gpnews.bg

Новини за общопрактикуващия лекар

БРОЙ 11 (270) ГОДИНА 23, НОЕМВРИ 2022 г. ISSN 1311-4727 ЦЕНА 3.00 ЛВ.

Тема на броя

ЕНДОКРИНОЛОГИЯ

Тема на броя
ЕНДОКРИНОЛОГИЯ

Съдържание

Купуваме медицински хеликоптер на лизинг

Поръчка за медицински хеликоптер, който да се предостави на т. нар. "сух лизинг", обяви наскоро създадената държавна компания "България Хели Мед сървиз" ЕАД. Прогнозната стойност на доставката е 1 756 004 Евро. Летателният апарат трябва да е с необходимото медицинско оборудване за нуждите на спешна медицинска помощ с хеликоптер (HEMS).

"Сух лизинг" според техническата спецификация означава договор, по силата на който лизингодателят предоставя за ползване на лизинг въздухоплавателно средство без екипаж на друг оператор и то се експлоатира под условията на свидетелството за авиационен оператор или друг равностоен документ на лизингополучателя, под неговия търговски контрол и в съответствие с неговите търговски права.

От лизингодателя ще се изисква също да обучи летателния състав – до шестима пилоти и един инструктор за работа с медицинското оборудване при HEMS операции, да проведе тренировки на пилоти, ако е необходимо. Той трябва да осигури пълен комплект ръководства по експлоатация и необходимата застраховка. Срокът за подаване на оферти е до 14-ти ноември. Паралелно с това от УМБАЛ "Св. Георги" в Пловдив обявиха с предварителна информация, че стартират процедура за проектиране и изграждане на покрит паркинг – многоетажен гараж, с възможност той да бъде лицензиран за хеликоптерна площадка с коридор към спешното й отделение. Прогнозната стойност на тази поръчка ще е 17,6 млн. лв. без ДДС.

Припомняме, че по голямата поръчка на Здравното министерство за покупка на шест медицински хеликоптера с възможност за още един допълнително има подадена само една оферта.

Предложението е на италианската компания Leonardo S.p.A. Тази поръчка е с индикативна стойност от 162 711 735 лв. с ДДС (без ДДС сумата е почти 135,6 млн. лева).

Най-масовите медикаменти са поскъпнали с 10%

Както и при всички останали продукти, инфлацията се отразява и върху цените на лекарствата. Те стават все по-високи. Най-сериозен ръст в цените има при така наречените „нерегулирани продукти". Това са хранителни добавки, хомеопатия, медицински консумативи и козметика.

Увеличение, макар и по-слабо, се наблюдава и при лекарствата, отпускани без рецепта. Пример за това е медикамент, който пациентите много често използват при остра и суха кашлица. Ако в началото на годината опаковка от него е струвала около 8 лв., към днешна дата цената е близо 10 лв. Около 10% нагоре - толкова е средната разлика в цените спрямо януари, изчисляват фармацевти. Най-осезаемо е увеличението в цените на препаратите срещу простуда, грип или симптоми на COVID-19. С до 2 лв. са поскъпнали най-масовите аналгетици, таблетки за смучене при болки в гърлото, витамини, спрейове за нос. Хранителните добавки и козметиката също отбелязват голям скок в цените, признават фармацевтите. Причината - липсва регулация от страна на държавата, такава, каквато действа при лекарствата. Изключения обаче има и тук - от около 500 медикамента от Позитивния лекарствен списък, близо 90 са с нови, по-високи цени. От Здравното министерство съобщиха, че до септември тази година е допуснато увеличение в цените на 60 вида лекарствени продукта, отпускани с рецепта. За сравнение през 2021 скок е имало само при 34 медикамента.

Увеличават местата за специализанти държавна поръчка

С четири бройки се увеличават местата за специализация по държавна поръчка. Това става със заповед на служебния здравен министър д-р Асен Меджидиев. За специализация по „Акушерство и гинекология" се отпускат две допълнителни места към Медицинския факултет на Тракийския университет в Стара Загора. Отпуска се също така по едно място за специалностите „Неонатология" и „Обща медицина". Специализантското място по „Неонатология" също е към Медицинския факултет на старозагорския Тракийския университет, а мястото за специализация по „Обща медицина" – към МУ София.

Хипотиреоидизъм и бременност

Д-р В. Яначкова[1], Проф. З. Каменов[2], д.м.н.

[1] Медицински комплекс „Д-р Щерев“ - София

[2] Клиника по ендокринология и болести на обмяната, УМБАЛ “Александровска“, МУ - София

РЕЗЮМЕ

Тиреоидните заболявания са второто по честота на изява ендокринно нарушение, засягащо жените в репродуктивна възраст. Нормалната тиреоидна функция на бременната жена е от есенциално значение за успешното протичане на бременността. От основно значение е ролята на тиреоидните хормони в регулацията на метаболитните процеси при бременната - въглехидратна, водно-солева, калциево-фосфорна обмяна, респективно подсигуряване на хомеостазата. От друга страна, адекватното количество на тиреоидни хормони към развиващия се фетус има отношение към неговото нормално развитие, съзряване и мозъчна функция. В първата половина на бременността развитието на плода е зависимо изцяло от нивата на майчините тиреоидни хормони, тъй като адекватното функциониране на феталната тиреоидея започва след 8-10 гестационна седмица (г.с.). Поради това от огромно значение са финитe механизми на регулация на тиреоидната функция на бременната, служещи за обезпечаване на нуждите на майката и развиващия се плод. Намалена функция на щитовидната жлеза се наблюдава при приблизително 2-2,5 % от бременните жени, като хипотиреоидизмът е рисков фактор за възникване на майчини и фетални усложнения.

Ключови думи: *бременност, тиреоидна функция, хипотиреоидизъм*

Адрес за кореспонденция: *Д-р Веселина Яначкова ◆ Медицински комплекс „Д-р Щерев“, София ◆ 1330, София ◆ ул. „Христо Благоев“, 25 ◆ e-mail: v_ess@abv.bg ◆ тел.: 0886 436 963*

SUMMARY

Hypothyroidism and pregnancy

V. Yanachkova[1], Z. Kamenov[2]

[1] Ob/Gyn “Dr. Shterev Hospital” - Sofia, Bulgaria

[2] Clinic of Endocrinology, Alexandrovska University Hospital, Medical University Sofia - Sofia, Bulgaria

Thyroid diseases are the second most common endocrine disorder affecting women of reproductive age. Normal thyroid function in a pregnant woman is essential for a successful pregnancy. During pregnancy, thyroid hormones play a key role in the regulation of the mother's metabolic processes - respectively carbohydrate, water-salt, and calcium-phosphorus exchange, ensuring homeostasis. On the other hand, an adequate amount of thyroid hormones in the fetus is related to its normal development, maturation, and brain function. In the first half of pregnancy, the development of the fetus is entirely dependent on the levels of maternal thyroid hormones The functioning of the fetal thyroid gland begins after 8-10 weeks of gestation.Therefore, the subtle mechanisms of regulation of the thyroid gland function of the pregnant woman, serving to provide for the needs of the mother and the developing fetus, are of great importance. Hypothyroidism occurs in approximately 2-2.5% of pregnant women. This condition is a risk factor for maternal and fetal complications.

Key words: *pregnancy, thyroid function, hypothyroidism*

Address for correspondence: *Vesselina Yanachkova ◆ Obs/Gyn- “Dr. Shterev” Hospital, Sofia ◆ Sofia 1330 ◆ 25 “ Hristo Blagoev”str. ◆ e-mail: v_ess@abv.bg ◆ GSM: 0886 436 963*

ВЪВЕДЕНИЕ

Физиологични промени в тиреоидната функция - майчини аспекти

Физиологията на щитовидната жлеза на майката се променя по време на бременност. Наблюдават се хиперплазия и нарастване на обема на жлезата, което обаче не се отразява на нейната структура. Продукцията на тироксин (Т4) и трийодтиронин (Т3) се повишава с 50%, успоредно с 50% повишение на нуждата от йод. Наблюдава се общо нарастване на тиреоидната активност, поради което здравите индивиди остават в еутиреоидно състояние. При жени с ограничен резерв или живеещи в

folia medica

Folia Medica 64(5):725-732
DOI: 10.3897/folmed.64.e65693

Review

Gestational Diabetes Mellitus: a Growing Economic Concern

Radiana Staynova[1], Emanuela Vasileva[2,4], Vesselina Yanachkova[3]

[1] *Department of Pharmaceutical Sciences, Faculty of Pharmacy, Medical University of Plovdiv, Plovdiv, Bulgaria*

[2] *Department of Propaedeutics of Internal Diseases, Faculty of Medicine, Medical University of Plovdiv, Plovdiv, Bulgaria*

[3] *Dr Shterev Hospital, Sofia, Bulgaria*

[4] *Clinic of Endocrinology and Metabolic Disorders, Kaspela University Hospital, Plovdiv, Bulgaria*

Corresponding author: Radiana Staynova, Department of Pharmaceutical Sciences, Faculty of Pharmacy, Medical University of Plovdiv, 15A Vassil Aprilov, 4002 Plovdiv, Bulgaria; Email: radiana.staynova@mu-plovdiv.bg; Tel.: +359 32/200 768

Received: 9 Mar 2021 ♦ **Accepted:** 13 May 2021 ♦ **Published:** 31 Oct 2022

Citation: Staynova R, Vasileva E, Yanachkova V. Gestational diabetes mellitus: a growing economic concern. Folia Med (Plovdiv) 2022;64(5):725-732. doi: 10.3897/folmed.64.e65693.

Abstract

Gestational diabetes mellitus (GDM) is a common pregnancy complication. Recent epidemiological data have shown that GDM prevalence has been on the increase worldwide. GDM could lead to adverse pregnancy outcomes and is usually associated with higher costs for its treatment and management. Pharmacoeconomics has become a crucial component of the healthcare systems in recent years because of the steadily rising costs. Despite this, there are few pharmacoeconomic studies evaluating the expenses of pregnancies impacted by GDM.

This article presents a brief introduction to pharmacoeconomics and provides awareness of the economic impact of GDM. Studies associated with health care costs of GDM were reviewed and an attempt was made to determine its global economic burden.

Keywords

gestational diabetes, pharmacoeconomics, costs

INTRODUCTION

In their reproductive years, women use health services to a greater extent than men do.[1,2] The reason for this discrepancy is the health expenditures women have for medical care during pregnancy and childbirth, and the treatment of prenatal complications.[1] In general, medical expenditures of pregnant women include the costs for antenatal care during pregnancy, inpatients visits, delivery, and newborn baby's care.[2] Pregnancy could be followed by numerous complications that contribute to considerably higher costs.[2,3] In addition to health care costs, there are indirect costs that can occur during pregnancy – like unexpected absences from work or short- and long-term disability.

Gestational diabetes mellitus (GDM) is a common pregnancy complication. It is associated with short- and long-term consequences for both mother and child, including obesity, metabolic syndrome, and the development of type 2 diabetes mellitus (T2DM) later in life. Early diagnosis and adequate therapeutic intervention can significantly improve pregnancy outcome and long-term consequences for women with this condition and their children.[4] In addition, GDM is associated with higher costs for treatment and management.[2]

An important goal in GDM management is to maintain blood glucose levels close to the normal level for pregnancy.[5] This can be achieved through lifestyle modification and/or insulin therapy combined with regular self-monitoring of blood glucose.[2] Outpatient treatment of GDM is the preferred strategy due to the societal and financial benefits it provides. Nevertheless, in some cases short-term hospitalizations are required, which are associated with additional costs.[2,6]

PHARMACIA

Pharmacia 70(4): 1119–1126
DOI 10.3897/pharmacia.70.e109835

Research Article

Weight management strategies and food supplement intake among Bulgarian adults: results of a national survey

Radiana Staynova[1], Vesselina Yanachkova[2]

1 *Department of Pharmaceutical Sciences, Faculty of Pharmacy, Medical University of Plovdiv, 15A Vassil Aprilov Blvd., 4002 Plovdiv, Bulgaria*
2 *Department of Endocrinology, Specialized Hospital for Active Treatment in Obstetrics and Gynecology "Dr Shterev", 1330 Sofia, Bulgaria*

Corresponding author: Radiana Staynova (radiana.staynova@mu-plovdiv.bg)

Received 20 July 2023 ♦ **Accepted** 19 September 2023 ♦ **Published** 12 October 2023

Citation: Staynova R, Yanachkova V (2023) Weight management strategies and food supplement intake among Bulgarian adults: results of a national survey. Pharmacia 70(4): 1119–1126. https://doi.org/10.3897/pharmacia.70.e109835

Abstract

The number of overweight and obese people has dramatically risen in the last two decades and has become one of the most serious health concerns. This study aimed to assess the use of food supplements as aids in reducing body weight and different approaches for weight management practised by Bulgarian adults.

A cross-sectional, questionnaire-based online survey was conducted between December 2019 and February 2020. A total of 508 adults completed the survey. According to study participants, the Internet was the most used source of weight reduction information (66.9%). One hundred and seventy-two adults (33.9%) have sought weight-loss advice from a personal trainer/fitness instructor, and only 12.6% (n = 64) have consulted with a physician. More than half of the respondents (n = 288, 56.7%) reported food supplement use to maintain weight. The majority of the consumers were female (76.4%, $p < 0.001$) and adults with higher education (89.9%, $p < 0.001$). The main reasons for food supplement intake were individual research on the Internet (43%), advice from a personal trainer/fitness instructor (23.6%), and a recommendation from a healthcare provider (22.2%).

With the increasing rates of overweight and obesity, food supplements are becoming a popular weight-loss approach, which is confirmed by our findings.

Keywords

overweight, obesity, weight reduction, food supplements, lifestyle changes

Introduction

The number of overweight and obese people has dramatically risen in the last three decades and has become one of the most serious health concerns (Tiwari and Balasundaram 2023). Nowadays around 60% of adults in Europe are estimated to be overweight or obese (World Health Organization 2022). According to the World Health Organization (WHO), until recently overweight and obesity were associated mainly with high-income countries, however, nowadays these conditions are also prevalent in low-income and middle-income countries (World Health Organization 2021). In 2019, 64.3% of men and 46.3% of women (aged 18 years or over) in Bulgaria were considered to be overweight or obese (Eurostat 2021).

Obesity is defined as a multifactorial syndrome associated with increased deposition of adipose tissue in the body (Lin and Li 2021). Excessive food intake and insufficient physical activity are the primary impetus for the development of obesity (Hill et al. 2012). Different individual patterns like

Benefits of using a microencapsulated vitamin D delivery system in women with polycystic ovary syndrome

Vesselina Yanachkova [1], Radiana Staynova [2], Svetoslav Stoev,[3] Emilia Naseva [4]

[1]Department of Endocrinology, Specialised Hospital for Active Treatment of Obstetrics and Gynecology, Sofia, Bulgaria
[2]Department of Pharmaceutical Sciences, Faculty of Pharmacy, Medical University of Plovdiv, Plovdiv, Bulgaria
[3]Department of Pharmaceutical Sciences and Social Pharmacy, Faculty of Pharmacy, Medical University – Pleven, Pleven, Bulgaria
[4]Faculty of Public Health, Department of Health Economics, Medical University of Sofia, Sofia, Bulgaria

Correspondence to
Dr Vesselina Yanachkova, Department of Endocrinology, Specialised Hospital for Active Treatment of Obstetrics and Gynecology "Dr Shterev", Sofia, Bulgaria; v_ess@abv.bg

Received 15 July 2021
Accepted 19 October 2021

EAHP Statement 4: Clinical Pharmacy Services. EAHP Statement 5: Patient Safety and Quality Assurance.

To cite: Yanachkova V, Staynova R, Stoev S, *et al*. *Eur J Hosp Pharm* Epub ahead of print: [*please include* Day Month Year]. doi:10.1136/ejhpharm-2021-002967

ABSTRACT

Objective To compare and assess the efficacy of two vitamin D delivery systems (oil-based and microencapsulated) on 25-hydroxy-vitamin D (25(OH)D) levels, body mass index (BMI) and insulin resistance (IR) in women with established polycystic ovary syndrome (PCOS) and vitamin D deficiency.

Materials and methods A monocentric, retrospective study was conducted, using the data of 70 female patients, who visited the endocrinology department of the "Dr. Shterev" Hospital, Sofia, Bulgaria between May 2020 and September 2020. The patients were divided into two groups according to the type of vitamin D_3 supplementation: either a microencapsulated liposomal form (n=35), or a conventional oil-based form (n=35). The following clinical measures were analysed and compared: BMI, serum levels of 25(OH)D, fasting plasma glucose levels, fasting immunoreactive insulin (IRI), homeostatic model assessment (HOMA) index, levels of antimullerian hormone (AMH) II generation, and testosterone. In all selected patients, these measurements were performed at baseline and 3 months after initiation of vitamin D supplementation.

Results Significantly increased serum levels of 25(OH)D were observed in patients supplemented with the microencapsulated form of vitamin D_3 in the third month from the beginning of therapy, compared with the control group (p=0.003). In the microencapsulated vitamin D group, there was a decrease in IRI serum levels (p=0.023), HOMA-IR (p=0.021), serum AMH (p=0.010) and testosterone levels (p=0.006). The fasting plasma glucose levels did not change significantly.

Conclusion The results of our study show that the patients supplemented with a microencapsulated form of vitamin D_3 achieved faster compensation of 25(OH)D levels, which in turn, under equal conditions, led to significant improvement in the metabolic profile, in particular insulin sensitivity.

INTRODUCTION

Vitamin D is a fat-soluble vitamin and prohormone that plays a major role in bone metabolism through the regulation of calcium and phosphorus homeostasis.[1–3] Along with this, it has a number of other, extracellular biological actions, which are due to the vitamin D receptors (VDR) located in nearly every tissue and cell in the body, including the ovary, endometrium, mammary glands, pancreatic β-cells, skeletal muscle, adipose tissue, etc.[4] It has been found that in ovarian tissue vitamin D stimulates the production of progesterone by 13%, estradiol by 9%, and estrone by 21%.[5] It is assumed that vitamin D has a physiological role in reproduction, including folliculogenesis and luteinisation, through the effect of the antimullerian hormone (AMH) and progesterone production in human granulosa cells.[6] Vitamin D may play an important role in glucose homeostasis. It stimulates insulin secretion through VDR located in pancreatic β-cells and reduces peripheral insulin resistance through VDR in the skeletal muscles and liver.[7] All this explains the importance of vitamin D in terms of reproduction, insulin secretion, and insulin sensitivity.

The major source of vitamin D for humans is exposure to natural sunlight.[2] Most of the amount of vitamin D_3 in the human body comes from its synthesis in the skin under the action of ultraviolet (UV) rays. Vitamin D_3 is formed when 7-dehydrocholesterol in the skin is exposed to UV irradiation (UVB 290–320 nm), and then converted to previtamin D_3.[8] Only 10–20% of the required amount of vitamin D for the body is obtained through dietary intake.[1] Vitamin D is synthesised under the action of the enzyme 25-hydroxylase in the liver that synthesises 25-hydroxy-vitamin D (25(OH)D), which is currently the main indicator of vitamin D status in the body. Through another metabolic step, under the action of renal 1-α-hydroxylase, 25(OH)D is metabolised to 1,25 dihydroxy-vitamin D—the physiologically active form of vitamin D in the body.[9] The hydroxylation process and the production of 1,25(OH)D depend on several factors, including plasma parathyroid hormone levels, calcium and phosphorus levels, and fibroblast growth factor 23.[4] Due to its binding to tissue receptors, the active form of vitamin D exerts its effects.[1 2]

With an insufficient intake of vitamin D with food, the absence of adequate sun exposure, or when there are disturbances in its synthesis or a defect in VDR, a state of deficiency occurs.[1–3 10]

In recent years, the results of numerous studies show that vitamin D deficiency is associated with a number of metabolic disturbances, including insulin resistance (IR).[11–14] Polycystic ovary syndrome (PCOS) is one of the most common endocrine disorders in women of reproductive age and is a major cause of anovulation.[15] PCOS is characterised by the manifestation of moderate to severe IR. Hyperinsulinaemia is one of the main components in the pathogenesis of PCOS and is primarily responsible for hyperandrogenism.[16 17] Hyperinsulinaemia is not just a symptom of PCOS—it is also

Biotechnology & Biotechnological Equipment

ISSN: 1310-2818 (Print) 1314-3530 (Online) Journal homepage: www.tandfonline.com/journals/tbeq20

Relationship between Vitamin D status and microbiome changes in Bulgarian patients with type 2 diabetes mellitus

Milena Velizarova, Vesselina Yanachkova, Tzenka Boneva, Silva Giragosyan, Ivelina Mihaleva, Pavlina Andreeva-Gateva, Dobrin Svinarov & Ivanka Dimova

To cite this article: Milena Velizarova, Vesselina Yanachkova, Tzenka Boneva, Silva Giragosyan, Ivelina Mihaleva, Pavlina Andreeva-Gateva, Dobrin Svinarov & Ivanka Dimova (2023) Relationship between Vitamin D status and microbiome changes in Bulgarian patients with type 2 diabetes mellitus, Biotechnology & Biotechnological Equipment, 37:1, 2209662, DOI: 10.1080/13102818.2023.2209662

To link to this article: https://doi.org/10.1080/13102818.2023.2209662

Published online: 15 May 2023.

BIOTECHNOLOGY & BIOTECHNOLOGICAL EQUIPMENT
2023, VOL. 37, NO. 1, 2209662
https://doi.org/10.1080/13102818.2023.2209662

Relationship between Vitamin D status and microbiome changes in Bulgarian patients with type 2 diabetes mellitus

Milena Velizarova[a], Vesselina Yanachkova[b], Tzenka Boneva[c], Silva Giragosyan[d], Ivelina Mihaleva[e], Pavlina Andreeva-Gateva[e], Dobrin Svinarov[a] and Ivanka Dimova[f§]

[a]Department of Clinical Laboratory, Medical University of Sofia; University Hospital "Alexandrovska", Sofia, Bulgaria; [b]Obstetrics and Gynecology, "Dr. Sterev" Hospital, Sofia, Bulgaria; [c]University Hospital "Alexandrovska", Medical University of Sofia, Sofia, Bulgaria; [d]Molecular Medicine Centre, Medical University of Sofia, Sofia, Bulgaria; [e]Department of Pharmacology and Toxicology, Faculty of Medicine, Medical University of Sofia, Sofia, Bulgaria; [f]Department of Medical Genetics, Faculty of Medicine, Medical University of Sofia, Sofia, Bulgaria

ABSTRACT

The human microbiome plays a very important role in the normal functioning of both metabolic and immune systems. Changes in gut microbiota (dysbiosis) possibly contribute to the development of metabolic and autoimmune diseases. There is close association between the human gut microbiome and Vitamin D metabolism. The objective of our study was to characterize the composition of the gut microbiome in patients with type 2 diabetes mellitus (T2DM) in comparison to controls with normal glucose tolerance, and to correlate the Vitamin D status with the changes in the gut microbiome. Totally, 15 patients with T2DM and 16 controls were enrolled in the study. The complex gut microbiome was analysed by next generation sequencing (NGS) in both groups, additionally divided into subgroups according to serum 25-hydroxyVitamin D (25[OH]D) levels. We found a significant decrease in butyrate-producing bacteria *Eubacterium* spp. and an increase in lipopolysaccharide (LPS) - positive bacteria *Enterobacter* spp., *Escherichia* spp. and *Pseudomonas* spp. in T2DM patients compared to controls. Control individuals with 25[OH]D levels of over 80 nmol/L were characterized with significantly decreased amount of *Escherichia* spp. and *Pseudomonas* spp. and increased *Eubacterium* spp. On the other hand, 25[OH]D < 80nmol/L levels in diabetic patients were related with lower content of butyrate-producing bacteria and higher levels of LPS-positive bacteria. The results showed an influence of gut microbiome on the glucose homeostasis and a relationship between Vitamin D levels and the gut microbiome.

ARTICLE HISTORY
Received 27 December 2022
Accepted 28 April 2023

KEYWORDS
Type 2 diabetes mellitus; gut microbiome; Vitamin D; 25[OH]D

Introduction

The human microbiome includes about 100 trillion microbes, most of which live in the gastrointestinal tract. This microbiome is composed of communities of bacteria, viruses and fungi and plays a very important role in the normal functioning of the methabolism and the immune system. Changes and dysregulation of gut microbiota (dysbiosis) can contribute to the development of some metabolic and autoimmune diseases [1]. Variations in diet could change by more than 10% the gut microbiome as well [2, 3]. Interventions on gut microbiome in mice disturbed the glucose metabolism, accompanied by macrophage accumulation in white adipose tissue, and led to insulin insensitivity [3, 4]. It is known that the microbiome could contribute to triggering chronic low-grade inflammation that is seen in patents with insulin resistance and type 2 diabetes mellitus (T2DM) [1].

Vitamin D modulates the functioning of the gut microbiome. It regulates cytokines and T-cell differentiation and function during the process of cell inflammation. The active form of Vitamin D (1,25(OH)2D) stimulates macrophages in producing antimicrobial peptides [5, 6].

CONTACT Milena Velizarova milena.velizarova@gmail.com Department of Clinical Laboratory, Medical University of Sofia; University Hospital "Alexandrovska", 1 G. Sofiiski Str., 1431 Sofia, Bulgaria.

§This paper is an extended version of the following e-poster presented at the Advanced Technologies & Treatments for Diabetes Conference, 22 Apr 27–30, Barcelona & Online. Dimova I, Yanachkova V, Boneva T, Mihaleva I, Velizarova M, Svinarov D, Gateva P. Microbiome characterization in type 2 diabetes mellitus-relation to Vitamin D levels [E-poster Abstract]. Diabetes Technology & Therapeutics, 2022;24: A186-A186, 140.

IDF23-0538

Bulgarian community pharmacists' knowledge towards diabetes mellitus management: results of a pilot survey

R. Staynova[a], E. Gavazova[a], V. Yanachkova[b], D. Kafalova[a]

[a]*Medical University of Plovdiv- Faculty of Pharmacy, Department of Pharmaceutical Sciences, Plovdiv, Bulgaria*
[b]*Dr Shterev Hospital, Department of Endocrinology, Sofia, Bulgaria*

Background: Community pharmacists are considered to be the most accessible healthcare professionals [1]. They are ideally situated to play an essential role in diabetes management, including the identification of patients, education/consultation, and monitoring of treatment plans and outcomes [2, 3].

Aim: The current study aims to evaluate the level of knowledge of community pharmacists towards diabetes mellitus management.

Method: A cross-sectional study was conducted among community pharmacists between November 2022–January 2023. A web-based questionnaire was sent to the participants via social media platforms. The data was collected through Google Forms. The study tool was a self-administered questionnaire consisting of two sections. The first section contained questions regarding pharmacists' demographics and professional status. In the second section, a twenty-item questionnaire based on the Diabetes Knowledge Test (DKT) was used.

Results: A total of 272 questionnaires were completed. Most of the participants were female (74.3%), and the remaining 25.7% were male. The mean age was 32.2 ± 9.1 years (range 26–59 years). The majority of the survey participants reported working in a pharmacy chain (64.7%). The overall mean knowledge score was 14.10 (range 0–20, max possible score 20). The majority of the pharmacists (58%) obtained scores between 13–16 points, which corresponds to "moderate knowledge". Based on the sum of correct answers, 25% of pharmacists had "good knowledge" and the remaining 17% were found to have "poor knowledge". A statistically significant difference was found regarding pharmacists' work experience and knowledge towards diabetes management. Those pharmacists with more than 5 years of work experience had a higher mean knowledge score (mean = 15.60, $p = 0.029$).

Conclusion: Pharmacy professionals in our pilot study had moderate knowledge of diabetes management. Continuing education programs may help pharmacists to maintain up-to-date knowledge and skills and to be more confident in providing pharmaceutical care for patients with diabetes.

Reference(s)

[1] Campbell RK. Role of the pharmacist in diabetes management. *American Journal of Health-System Pharmacy*. 2002;59(suppl_9):S18–21.
[2] Hughes JD, Wibowo Y, Sunderland B, Hoti K. The role of the pharmacist in the management of type 2 diabetes: current insights and future directions. *Integrated Pharmacy Research and Practice*. 2017; 6:15–27.
[3] Venkatesan R, Devi AM, Parasuraman S, Sriram S. Role of community pharmacists in improving knowledge and glycemic control of type 2 diabetes. *Perspectives in Clinical Research*. 2012;3(1):26.

Diabetes Research and Clinical Practice 209S1 (2024) 111531
https://doi.org/10.1016/j.diabres.2024.111531

IDF23-0541

Decrease of lipids with extracts of Plathymenia reticulata Benth and Azadirachta indica (Neem) in obese rats

S. Ferreira[a], F. Oliveira Magalhães[a], G. Braga de Paula Cançado[a], L. Augusto Alves Silva[a], C. Sivieri Schlischka[a], L. Vitória Oliveira Silva[a], M.E. Franco[a], M.E. Santos Resende[a], P. Ibler Bernardo Ceron[a], B. Rabelo Tavares[a], R. Pacheco Policarpo[a], I. Faria de Mello[a]

[a]*Universidade de Uberaba, Curso de Medicina, Uberaba, Brazil*

Background: Plathymenia reticulata Benth is a herbal medicine that has properties of pancreatic islet hyperplasia and glycemic control in diabetic rats. Neem (Azadirachta indica A. Juss, Meliaceae) is a tree native to India that has various medicinal effects.

Aim: To verify the impacts of treatment with Plathymenia reticulata Benth and Azadirachta indica (Neem) on lipids in rats.

Method: A study was carried out in an experimental model of type 2 diabetes mellitus in 65 rats (29 diabetics and 36 controls) adult male Wistar divided into 9 groups: non-diabetic and diabetic controls, Neem extract (300 mg/kg), Plathymenia extract (100 mg/kg), water (negative control) and glibenclamide (600 mcg/kg - positive control); and association between the two extracts. Diabetes was induced by the intraperitoneal injection of streptozotocin (45 and 35 mg/kg), after a hyperlipidic diet for 4 weeks. Confirmation of the diagnosis was based on a postprandial glucose concentration greater than 200 mg/dL. The treatment was performed by orogastric gavage, for 28 days, with the collection of lipids after this. Data were analyzed using ANOVA and the Tukey-Kramer post-hoc test, with a significance level of 5% using the SPSS 25.0 software, with results expressed as mean ± EPM.

Results: There was no change in the levels of total cholesterol ($p = 0.485$), triglycerides ($p = 0.171$), HDL-C ($p = 0.637$), LDL-C ($p = 0.111$) in diabetic rats. Nevertheless, a significant decrease was found in total cholesterol in control rats ($p = 0.008$), (Plathymenia 33.89 ± 2.03; Control 44.29 ± 3.41, Neem - 51.10 ± 5.45; Plathymenia +Neem - 52 0.40 ± 3.55), triglycerides ($p < 0.001$) (Plathymenia 58.22 ± 4.08; Control 75.57 ± 4.12, Neem - 100.70 ± 9.92; Plathymenia+Neem - 95.30 ± 4.78) and HDL-C ($p < 0.001$) (Plathymenia 10.78 ± 0.49; Control 15.71 ± 1.10, Neem - 15.70 ± 1.05; Plathymenia+Neem - 18.00 ± 0.87).

Conclusion: The results of this study provide a promising assessment of the ability of cold extract of Plathymenia to reduce serum lipid levels in obesity. These findings suggest that Plathymenia extract may represent a viable herbal treatment option for metabolic syndrome.

Diabetes Research and Clinical Practice 209S1 (2024) 111532
https://doi.org/10.1016/j.diabres.2024.111532

Taylor & Francis
Taylor & Francis Group

Biotechnology & Biotechnological Equipment

ISSN: 1310-2818 (Print) 1314-3530 (Online) Journal homepage: www.tandfonline.com/journals/tbeq20

Thyroid dysfunction as a long-term post-COVID-19 complication in mild-to-moderate COVID-19

Vesselina Yanachkova, Teodora Stankova & Radiana Staynova

To cite this article: Vesselina Yanachkova, Teodora Stankova & Radiana Staynova (2023) Thyroid dysfunction as a long-term post-COVID-19 complication in mild-to-moderate COVID-19, Biotechnology & Biotechnological Equipment, 37:1, 194-202, DOI: 10.1080/13102818.2023.2170829

To link to this article: https://doi.org/10.1080/13102818.2023.2170829

Published online: 31 Jan 2023.

BIOTECHNOLOGY & BIOTECHNOLOGICAL EQUIPMENT
2023, VOL. 37, NO. 1, 194–202
https://doi.org/10.1080/13102818.2023.2170829

Thyroid dysfunction as a long-term post-COVID-19 complication in mild-to-moderate COVID-19

Vesselina Yanachkova[a], Teodora Stankova[b] and Radiana Staynova[c]

[a]Department of Endocrinology, Specialized Hospital for Active Treatment in Obstetrics and Gynaecology "Dr Shterev", Sofia, Bulgaria; [b]Department of Medical Biochemistry, Faculty of Pharmacy, Medical University of Plovdiv, Plovdiv, Bulgaria; [c]Department of Pharmaceutical Sciences, Faculty of Pharmacy, Medical University of Plovdiv, Plovdiv, Bulgaria

ABSTRACT

The severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2), the causative agent of coronavirus disease 2019 (COVID-19), may lead to thyroid disorders, including both thyrotoxicosis and suppression of thyroid function. The aim of the present study was to assess the post-COVID-19 effects on thyroid function in patients without history of thyroid disease after complete recovery from mild-to-moderate COVID-19. Thyroid function tests [thyroid-stimulating hormone (TSH), free thyroxine (fT4), antithyroid antibodies] were performed on 113 patients (median age of 43.0 years; 31.0% male) two months after initial SARS-CoV-2 infection. TSH and fT4 were determined again one month later in this observational, prospective study. Thyroid dysfunction was registered in 61.1% of the patients (78.3% subclinical hypothyroidism, 13% subclinical hyperthyroidism and 8.7% overt hypothyroidism) two months after COVID-19. Moderate rather than mild manifestation of COVID-19 was significantly associated with a higher risk of thyroid dysfunction (OR 5.33; 95% CI: 1.70–16.69, $p = 0.002$), presence of thyroglobulin antibodies and need for levothyroxine therapy. At the follow-up, the subclinical hypothyroidism persisted in 28.3% of the subjects. Moreover, the TSH level was significantly reduced in comparison to the second month after the initial COVID-19 infection in all the patients ($p < 0.001$), but not in those with subclinical hypothyroidism and without hormone replacement therapy. Our findings indicate that COVID-19 could have long-term, negative effects on thyroid function. Therefore, thyroid function testing should be included in the follow-up algorithm of COVID-19 survivors.

ARTICLE HISTORY
Received 29 November 2022
Accepted 17 January 2023

KEYWORDS
Thyroid dysfunction; post-COVID-19 complications; TSH; SARS-CoV-2

Introduction

Viral infections are a major environmental factor implicated in the pathophysiology of different thyroid dysfunctions. For example, the aetiology of autoimmune thyroid diseases, as well as subacute thyroiditis (SAT), also known as De Quervain's thyroiditis, has been related to viral infections [1]. The severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) is the causative agent of coronavirus disease 2019 (COVID-19). With the beginning of the COVID-19 pandemic, there has been accumulating evidence of the short- and long-term adverse effects of COVID-19 on human health. Along with life-threatening damage to the respiratory, cardiovascular, coagulation and nervous system, SARS-CoV-2 infection could lead to transient, but also long-term abnormalities in thyroid function [2]. However, the link between COVID-19 and changes in thyroid function and hormone levels is still unclear. One of the prevailing hypotheses is based on the so-called "low T3 syndrome", or Euthyroid Sick Syndrome (ESS). EES is characterized by low total triiodothyronine and free triiodothyronine (fT3) levels with low or normal free thyroxine (fT4) and thyroid-stimulating hormone (TSH) [3]. Significantly lower serum concentrations of fT3 have been shown to correlate with COVID-19 severity and to predict all-cause mortality of patients with severe COVID-19 [4,5]. Direct viral destruction of the thyroid gland parenchyma is another main mechanism possibly accounting for thyroid function perturbations in COVID-19 patients. Two known entry points for SARS-CoV-2, angiotensin-converting enzyme 2 (ACE-2) and transmembrane serine protease 2 (TMPRSS2), are highly expressed in thyroid follicular cells [6]. Noteworthy, the mechanism of action of different

CONTACT Radiana Staynova radiana.staynova@mu-plovdiv.bg Department of Pharmaceutical Sciences, Faculty of Pharmacy, Medical University of Plovdiv, Plovdiv 4002, Bulgaria.

VIA MEDICA

ORIGINAL PAPER / OBSTETRICS

Ginekologia Polska
2024, vol. 95, no. 4, 259–265

ISSN 0017–0011, e-ISSN 2543–6767

DOI 10.5603/gpl.91632

Metformin-associated maternal and neonatal outcomes in women with gestational diabetes — a retrospective cohort study

Vesselina Evtimova Yanachkova[1], Radiana Staynova[2], Svetoslav Stoev[3], Zdravko Kamenov[4]

[1]Department of Endocrinology, Specialized Hospital for Active Treatment of Obstetrics and Gynaecology "Dr Shterev", Sofia, Bulgaria
[2]Department of Pharmaceutical Sciences, Faculty of Pharmacy, Medical University of Plovdiv, Bulgaria
[3]Department of Pharmaceutical Sciences and Social Pharmacy, Faculty of Pharmacy, Medical University of Pleven, Bulgaria
[4]Clinic of Endocrinology, Alexandrovska University Hospital, Medical University of Sofia, Bulgaria

ABSTRACT

Objectives: To assess the maternal and neonatal outcomes in women with GDM treated with metformin, medical nutrition therapy (MNT) or insulin.

Material and methods: The current retrospective cohort study includes data from 233 women diagnosed with GDM who gave birth between January 2017 and January 2019 at an obstetrics and gynecology hospital in Sofia, Bulgaria. Patients were assigned to three groups, according to the treatment approach — metformin group (n = 70), insulin group (n = 40), and MNT group (n = 123). Values of fasting plasma glucose (FPG) and glycated hemoglobin (HbA1c) have been evaluated at diagnosis of GDM and the third trimester of pregnancy. A comparative analysis of pregnancy outcomes and short-term neonatal characteristics in the investigated groups has been performed.

Results: Women indicated for pharmacological treatment (metformin or insulin) had significantly higher BMI ($p < 0.01$), FPG ($p < 0.001$), and HbA1c levels ($p < 0.001$) at baseline. However, during pregnancy, patients treated with metformin showed a significantly lower BMI ($p < 0.01$), FPG ($p < 0.01$), and HbA1c ($p < 0.01$). Neonates born to metformin-treated mothers had lower birth weight compared to those born to women in the MNT and insulin groups (metformin vs MNT, $p < 0.001$; metformin vs insulin, $p = 0.03$). The lowest incidence of newborns with macrosomia and neonatal hypoglycemia has been observed in the metformin cohort. Not a single newborn with an Apgar score under 7 has been identified in the metformin group.

Conclusions: According to the current analysis, women with GDM treated with metformin demonstrated better maternal and neonatal outcomes. No short-term complications in newborns have been associated with metformin use during pregnancy.

Keywords: gestational diabetes; metformin; insulin; maternal outcomes; neonatal outcomes

Ginekologia Polska 2024; 95, 4: 259–265

INTRODUCTION

Gestational diabetes mellitus (GDM) is the most common cause of hyperglycemia during pregnancy [1]. According to the International Diabetes Federation (IDF), one in six live births (16.7%) in 2021 were to women with hyperglycemia during pregnancy, most often (80.3%) due to GDM [2]. The prevalence of GDM was estimated to vary between 1 and 28% according to different population studies [3]. More than 50% of women with previous GDM are at higher risk of developing type 2 diabetes mellitus (T2DM) in the first five years after birth [4].

Hyperglycemia in pregnancy is a risk factor for maternal and fetal complications. Pregnancies complicated with GDM are linked with an elevated risk of hypertensive disorders and cesarean deliveries [1]. In addition, women with GDM have a 10-fold higher risk of developing T2DM later in life

Corresponding author:
Vesselina Evtimova Yanachkova
Department of Endocrinology, Specialized Hospital for Active Treatment of Obstetrics and Gynaecology "Dr Shterev", 25–31 Hristo Blagoev St., Razsadnika quarter, 1330 Sofia, Bulgaria
e-mail: v_ess@abv.bg

Received: 29.08.2022 Accepted: 22.08.2023 Early publication date: 12.10.2023

PHARMACIA

Pharmacia 71: 1–7
DOI 10.3897/pharmacia.71.e141047

Research Article

Levothyroxine therapy in pregnancy: Are we overtreating patients?

Vesselina Yanachkova[1], Radiana Staynova[2], Daniela Grekova-Kafalova[2], Valentina Petkova[3]

1 *Department of Endocrinology, Specialized Hospital for Active Treatment of Obstetrics and Gynaecology "Dr Shterev", 1330 Sofia, Bulgaria*
2 *Department of Organisation and Economics of Pharmacy, Faculty of Pharmacy, Medical University of Plovdiv, 15A Vassil Aprilov Blvd., 4002 Plovdiv, Bulgaria*
3 *Department of Organization and Economics of Pharmacy, Faculty of Pharmacy, Medical University of Sofia, 2, Dunav Str., Sofia 1000, Bulgaria*

Corresponding author: Valentina Petkova (vpetkova@pharmfac.mu-sofia.bg)

Received 5 November 2024 ♦ **Accepted** 25 November 2024 ♦ **Published** 11 December 2024

Citation: Yanachkova V, Staynova R, Grekova-Kafalova D, Petkova V (2024) Levothyroxine therapy in pregnancy: Are we overtreating patients? Pharmacia 71: 1–7. https://doi.org/10.3897/pharmacia.71.e141047

Abstract

Background: Pregnancy imposes unique physiological requirements on the mother's thyroid gland to meet the thyroid hormone demands both for her and the fetus. A lack of consensus in current guidelines on diagnosing thyroid dysfunction during pregnancy and administering levothyroxine raises concerns regarding treatment efficacy. As hypothyroidism—subclinical or overt—is a recognized risk factor for an unfavorable pregnancy outcome, the administration of excessive or unneeded therapy can also lead to complications.

Objective: This study aims to evaluate the prevalence of levothyroxine replacement therapy among euthyroid pregnant women.

Materials and methods: A retrospective cohort study was conducted using the data from 6237 pregnant women who delivered at the OB/GYN Hospital "Dr. Shterev" in Sofia, Bulgaria, between January 2017 and December 2022. Thyroid function data were available for 1746 pregnant women meeting inclusion criteria: aged > 18 years, with singleton pregnancies, and thyroid hormone level tests conducted no later than mid-second trimester.

Results: According to pregnancy-specific thyroid disorder diagnostic criteria, patients were categorized into euthyroid (n = 1066), subclinical hypothyroidism (n = 421), overt hypothyroidism (n = 48), isolated maternal hypothyroxinemia (n = 160), gestational thyrotoxicosis (n = 46), and Graves' disease (n = 5). Analysis revealed that 37.7% (n = 401) of euthyroid pregnant women were prescribed levothyroxine. Only 22.9% (n = 92) of euthyroid women received hormone replacement therapy due to autoimmune thyroiditis.

Conclusion: Our findings prompt consideration regarding the appropriateness of levothyroxine therapy for euthyroid pregnant women. Clear guidance is warranted on the initiation of hormone replacement therapy during pregnancy.

Keywords

euthyroid women, hormone replacement therapy, hypothyroidism, levothyroxine, pregnancy, thyroid dysfunction

medicina

IMPACT FACTOR 2.4

Indexed in: PubMed

CITESCORE 4.1

Article

Defining Trimester-Specific Reference Intervals for Thyroid Hormones: Insights from a Bulgarian Monocenter Study

Vesselina Yanachkova, Radiana Staynova and Emilia Krassimirova Naseva

MDPI

https://doi.org/10.3390/medicina60050801

medicina

MDPI

Article

Defining Trimester-Specific Reference Intervals for Thyroid Hormones: Insights from a Bulgarian Monocenter Study

Vesselina Yanachkova [1,*,†], Radiana Staynova [2,†] and Emilia Krassimirova Naseva [3]

[1] Department of Endocrinology, Specialized Hospital for Active Treatment of Obstetrics and Gynecology "Dr Shterev", 1330 Sofia, Bulgaria
[2] Department of Organisation and Economics of Pharmacy, Faculty of Pharmacy, Medical University of Plovdiv, 4002 Plovdiv, Bulgaria; radiana.staynova@mu-plovdiv.bg
[3] Department of Health Economics, Faculty of Public Health "Prof. Tsekomir Vodenicharov, MD, DSc", Medical University of Sofia, 1527 Sofia, Bulgaria; e.naseva@foz.mu-sofia.bg
* Correspondence: v_ess@abv.bg
† These authors contributed equally to this work.

Abstract: *Background and Objectives*: Pregnancy introduces various interfering factors that, alongside individual variations, impact the assessment of thyroid function tests. This underscores the necessity of defining trimester-specific reference intervals for thyroid-stimulating hormone (TSH) levels. Differences in population characteristics, including ethnicity, socio-economic factors, iodine prophylaxis, and obesity, emphasize the need to establish trimester-specific TSH ranges for women of reproductive age in the respective region or center. The aim of the present study was to establish first- and second-trimester-specific reference intervals for TSH and free thyroxine (FT4) in a relevant pregnant population. *Materials and Methods*: A retrospective monocenter analysis utilized the electronic database of Ob/Gyn Hospital "Dr. Shterev", Sofia, Bulgaria. The analysis involved data from 497 pregnant and 250 non-pregnant women, all without evidence of thyroid dysfunction or a family history thereof, no indication of taking medication interfering with thyroid function, no evidence of levothyroxine treatment, and no history of sterility treatment. To establish the limits of the TSH reference range, the percentile method was applied using a bootstrapping procedure following the recommendations of the International Federation of Clinical Chemistry (IFCC). *Results*: Trimester-specific reference intervals for TSH and FT4 in our center were established as follows: first trimester—0.38–2.91 mU/L, FT4-12.18–19.48 pmol/L; second trimester—0.72–4.22 mIU/L and 9.64–17.39 pmol/L, respectively. We also established the normal reference range for the non-pregnant control group, which is similar to that applicable in our laboratory. *Conclusions*: Our results differ from the fixed limits recommended by the American Thyroid Association, European Thyroid Association, and Endocrine Society Guidelines. Following the relevant established intervals would significantly impact timely diagnosis and therapy requirements for a substantial proportion of pregnant women.

Keywords: pregnancy; trimester specific; thyroid-stimulating hormone; reference interval; Bulgaria

Citation: Yanachkova, V.; Staynova, R.; Naseva, E.K. Defining Trimester-Specific Reference Intervals for Thyroid Hormones: Insights from a Bulgarian Monocenter Study. *Medicina* **2024**, *60*, 801. https://doi.org/10.3390/medicina60050801

Received: 12 March 2024
Revised: 26 April 2024
Accepted: 10 May 2024
Published: 13 May 2024

1. Introduction

Pregnancy is associated with the presence of interfering factors such as levels of estrogens, thyroxine-binding globulin, human chorionic gonadotropin, iodine sufficiency, and deiodinase activity, as well as the presence of antithyroid antibodies [1]. These factors, alongside individual variations in pregnant women, can impact the assessment of thyroid hormone levels. Consequently, general population ranges for thyroid-stimulating hormone (TSH) levels do not apply to pregnant women, and it is recommended to use trimester-specific reference intervals [2–6]. The adoption of such intervals significantly alters the approach to assessing thyroid dysfunction in pregnant women and initiating related therapies [2,7]. The importance of using trimester-specific intervals comes from the

medicina

IMPACT FACTOR 2.4

Indexed in: PubMed

CITESCORE 4.1

Review

Bone Health for Gynaecologists

Angel Yordanov, Mariela Vasileva-Slaveva, Eva Tsoneva, Stoyan Kostov and Vesselina Yanachkova

Special Issue

Bone Regeneration, Osteoporosis and Osteoarthritis

Edited by

Dr. Anna Capozzi

MDPI

https://doi.org/10.3390/medicina61030530

medicina

MDPI

Review

Bone Health for Gynaecologists

Angel Yordanov [1,*,†], Mariela Vasileva-Slaveva [2,3], Eva Tsoneva [4], Stoyan Kostov [2,5] and Vesselina Yanachkova [2,6,†]

1 Department of Gynecologic Oncology, Medical University-Pleven, 5800 Pleven, Bulgaria
2 Research Institute, Medica University Pleven, 5800 Pleven, Bulgaria; sscvasileva@gmail.com (M.V.-S.); drstoqn.kostov@gmail.com (S.K.); v_ess@abv.bg (V.Y.)
3 Department of Breast Surgery, Specialized Hospital for Active Treatment of Obstetrics and Gynaecology "Dr Shterev", 1330 Sofia, Bulgaria
4 Department of Reproductive Medicine, Specialized Hospital for Active Treatment of Obstetrics and Gynaecology "Dr Shterev", 1330 Sofia, Bulgaria; dretsoneva@gmail.com
5 Department of Gynecology, Hospital "Saint Anna", Medical University—"Prof. Dr. Paraskev Stoyanov", 9002 Varna, Bulgaria
6 Department of Endocrinology, Specialized Hospital for Active Treatment of Obstetrics and Gynaecology "Dr Shterev", 1330 Sofia, Bulgaria
* Correspondence: angel.jordanov@gmail.com
† These authors contributed equally to this work.

Abstract: Osteoporosis, the most common bone disorder, profoundly impacts women's health, especially during postmenopausal phases. Characterised by diminished bone mineral density (BMD), it increases the risk of fractures, affecting mobility, quality of life, and potentially mortality. The present review analyses the intricate interactions among physiological alterations, diseases, and medications that lead to bone mineral density reduction in women. It underscores the importance of gynaecologists in the prevention, diagnosis, and management of osteoporosis via early risk assessment, suitable hormone treatment, and lifestyle modifications. Essential considerations encompass the categorisation of osteoporosis into primary (age-related) and secondary (attributable to diseases or pharmacological treatments) types, with particular emphasis on predisposing conditions such as premature menopause, hormone deficits, and cancer therapies. The significance of diagnostic instruments such as DXA and novel methodologies like trabecular bone score and quantitative ultrasonography is emphasised for precise evaluation and surveillance. The review also addresses nutritional methods, physical exercise, and pharmaceutical interventions, including hormone replacement therapy (HRT), selective oestrogen receptor modulators (SERMs), and other anti-resorptive drugs, to preserve bone health. This review highlights the important role of gynaecologists in maintaining women's bone health, promoting a proactive strategy to avert osteoporosis-related complications and enhance long-term results.

Keywords: bone health; osteoporosis; diagnosis; risk factors; gynaecologist

Academic Editor: Anna Capozzi

Received: 2 March 2025
Revised: 13 March 2025
Accepted: 15 March 2025
Published: 18 March 2025

Citation: Yordanov, A.; Vasileva-Slaveva, M.; Tsoneva, E.; Kostov, S.; Yanachkova, V. Bone Health for Gynaecologists. *Medicina* **2025**, *61*, 530. https://doi.org/10.3390/medicina61030530

1. Introduction

Osteoporosis is the most common bone disorder, marked by quantitative and qualitative changes in bone tissue, resulting in reduced density and an increased risk of fractures. The prevalence of this condition cannot be accurately determined. The WHO classification of osteoporosis indicates that the prevalence among postmenopausal Caucasian women in the United States is estimated at 14% for ages 50–59, 22% for ages 60–69, 39% for ages 70–79, and 70% for those aged 80 and older [1].

International Journal of
Molecular Sciences

IMPACT FACTOR 4.9

Indexed in: PubMed

CITESCORE 9.0

Article

Abnormally Increased Prolactin Levels in Women with Polycystic Ovarian Syndrome Are Associated with Risk of Obesity, Insulin Resistance and Prediabetes

Vesselina Yanachkova and Teodora Stankova

Special Issue
Molecular Research on Reproductive Physiology and Endocrinology

Edited by
Dr. Kamil Gill

MDPI

https://doi.org/10.3390/ijms26094239

International Journal of
Molecular Sciences

MDPI

Article

Abnormally Increased Prolactin Levels in Women with Polycystic Ovarian Syndrome Are Associated with Risk of Obesity, Insulin Resistance and Prediabetes

Vesselina Yanachkova [1,2] and Teodora Stankova [3,*]

[1] Department of Endocrinology, Specialized Hospital for Active Treatment of Obstetrics and Gynecology "Dr. Shterev", 1330 Sofia, Bulgaria; v_ess@abv.bg
[2] Research Institute, Medical University-Pleven, 5800 Pleven, Bulgaria
[3] Department of Medical Biochemistry, Faculty of Pharmacy, Medical University of Plovdiv, 4002 Plovdiv, Bulgaria
* Correspondence: teodora.stankova@mu-plovdiv.bg

Abstract: Polycystic ovarian syndrome (PCOS) is a prevalent endocrine condition in women of reproductive age, characterized also by insulin resistance, affecting both obese and non-obese individuals. Hyperprolactinemia in patients with PCOS may additionally aggravate the decline in insulin sensitivity, attributable to prolactin lipogenic effects and influence on metabolic profile. Therefore, this study aimed to investigate the serum levels of prolactin in women with PCOS and their associations with obesity, insulin resistance and prediabetes. A retrospective monocentric study was performed using the electronic database of 157 women diagnosed with PCOS. Serum prolactin, BMI, complete glucose-insulin profile and insulin resistance indices following OGTT were determined. The women with hyperprolactinemia (40.8%) had significantly higher BMI ($p = 0.007$), fasting glucose ($p = 0.003$), insulin levels ($p < 0.001$) and HOMA-IR ($p < 0.001$). The women with PCOS categorized as overweight/obese (47.1%), insulin resistant (68.8%), having impaired fasting glycaemia (28.7%) and prediabetes (36.3%) showed significantly higher levels of prolactin compared to the respective counterparts. Consequently, higher prolactin levels were significantly associated with an elevated risk of development of overweight/obesity (OR 2.59; 95% CI: 1.34–4.97, $p = 0.004$), insulin resistance (OR 3.33; 95% CI: 1.54–7.19, $p = 0.002$) and prediabetes (OR 1.98; 95% CI: 1.02–3.85, $p = 0.043$) in women with PCOS. Our results suggest that hyperprolactinemia might be a pathophysiological link between obesity, insulin resistance, and carbohydrate metabolism impairments in patients with PCOS. Increased prolactin levels may serve as an additional indicator of insulin resistance and even further exacerbate it in women with PCOS.

Keywords: prolactin; polycystic ovarian syndrome (PCOS); hyperprolactinemia; insulin resistance; obesity; prediabetes; impaired fasting glucose

Academic Editor: Kamil Gill

Received: 2 April 2025
Revised: 27 April 2025
Accepted: 27 April 2025
Published: 29 April 2025

Citation: Yanachkova, V.; Stankova, T. Abnormally Increased Prolactin Levels in Women with Polycystic Ovarian Syndrome Are Associated with Risk of Obesity, Insulin Resistance and Prediabetes. *Int. J. Mol. Sci.* **2025**, *26*, 4239. https://doi.org/10.3390/ijms26094239

1. Introduction

Polycystic ovarian syndrome (PCOS) is the most common endocrine disorder among women of reproductive age, with a prevalence ranging between 5–20% according to the diagnostic criteria applied (5–20% or 10–15% according to the Rotterdam criteria and Androgen Excess Society, respectively) [1,2]. The diagnosis of PCOS is established when two of the following three criteria are fulfilled: chronic anovulation, hyperandrogenism (clinical or laboratory), and the presence of polycystic ovaries. Alongside clinical symptoms,

Chapter

Perspective Chapter: Hyperprolactinaemia – Diagnostic Pitfalls, Laboratory Nuances, and Clinical Interpretation

Vesselina Yanachkova

Abstract

Hyperprolactinaemia is a common endocrine condition that predominantly affects individuals of reproductive age and significantly contributes to infertility. The aetiology is complex and includes physiological factors (such as pregnancy, breast-feeding, and stress), pathological conditions (like prolactin-secreting adenomas and hypothyroidism), pharmacological influences, and systemic diseases that affect the liver and kidneys. Diagnosing hyperprolactinaemia presents clinical challenges due to various diagnostic errors, laboratory complexities, and overlapping medical conditions. Numerous factors, including stress, medications, phases of the menstrual cycle, and the techniques used for blood sample collection, can influence prolactin secretion. Additionally, analytical interferences, such as macroprolactinaemia and the hook effect, can complicate interpretation and may lead to misdiagnosis. It is essential to distinguish between true pathogenic hyperprolactinaemia and physiological or artefactual increases to avoid unnecessary tests and treatments. This chapter provides a comprehensive examination of hyperprolactinaemia, highlighting diagnostic challenges, laboratory anomalies, and clinical assessment. It underscores the importance of a systematic, stepwise approach that integrates clinical evaluation, biochemical analysis, and imaging studies to ensure accurate diagnosis and appropriate management.

Keywords: prolactin, hyperprolactinaemia, diagnostic process, diagnostic pitfalls, overdiagnosis

1. Introduction

1.1 Hyperprolactinaemia in clinical practice

Hyperprolactinaemia is the primary manifestation of hormonal hypersecretion within the hypothalamic-pituitary axis and is a significant etiological factor

pharmacy

IMPACT FACTOR 1.8

Indexed in: PubMed

Review

The Role of Pharmacists in Identifying and Preventing Drug-Related Problems in PCOS Management

Hristina Lebanova, Vesselina Yanachkova and Svetoslav Stoev

Special Issue

Women's Special Issue Series: Pharmacy and Pharmacists

Edited by

Dr. Maree Donna Simpson, Prof. Dr. Cheryl A. Sadowski and Dr. Daisy Volmer

MDPI

https://doi.org/10.3390/pharmacy13040095

pharmacy

MDPI

Review

The Role of Pharmacists in Identifying and Preventing Drug-Related Problems in PCOS Management

Hristina Lebanova [1,*], Vesselina Yanachkova [2,3] and Svetoslav Stoev [1]

[1] Department of Pharmaceutical Sciences and Social Pharmacy, Faculty of Pharmacy, Medical University-Pleven, 5800 Pleven, Bulgaria; svetoslav.stoev@mu-pleven.bg
[2] Research Institute, Medical University-Pleven, 5800 Pleven, Bulgaria; v_ess@abv.bg
[3] Department of Endocrinology, Specialized Hospital for Active Treatment of Obstetrics and Gynecology Dr. Shterev, 1330 Sofia, Bulgaria
* Correspondence: hristina.lebanova@mu-pleven.bg

Abstract

Polycystic ovary syndrome (PCOS) is an endocrine disorder prevalent in women of reproductive age, often requiring complex pharmacological management. The heterogeneity of the syndrome and the use of on- and off-label therapeutic agents—ranging from insulin sensitizers and ovulation inducers to oral contraceptives and herbal supplements—pose significant challenges, including adverse effects, drug interactions, and poor adherence. This narrative review explores the role of pharmacists in identifying and mitigating drug-related problems (DRPs) associated with PCOS therapy. Through thematic synthesis of the current literature, the study highlights common DRPs such as suboptimal drug selection, inappropriate dosing, prolonged therapy duration, and treatment-related safety concerns. It underscores the value of pharmacists' interventions in enhancing medication adherence, optimizing therapeutic regimens, providing patient education, and monitoring adverse events. A structured, patient-level pharmaceutical care model is proposed, emphasizing personalized assessment, interdisciplinary collaboration, and continuous follow-up. The integration of clinical pharmacists into PCOS care teams has the potential to improve treatment effectiveness, patient satisfaction, and long-term health outcomes. Pharmacists' contributions are especially critical given the widespread use of off-label therapies and supplements with variable evidence of benefit. Tailored pharmaceutical care can thus bridge the existing gaps in PCOS management and enhance the quality of life for the affected individuals.

Keywords: polycystic ovary syndrome (PCOS); pharmaceutical care; drug-related problems (DRPs); pharmacist intervention; women's health; clinical pharmacy

Academic Editors: Cheryl A. Sadowski, Maree Donna Simpson and Daisy Volmer

Received: 6 June 2025
Revised: 5 July 2025
Accepted: 10 July 2025
Published: 11 July 2025

Citation: Lebanova, H.; Yanachkova, V.; Stoev, S. The Role of Pharmacists in Identifying and Preventing Drug-Related Problems in PCOS Management. *Pharmacy* **2025**, *13*, 95. https://doi.org/10.3390/pharmacy13040095

1. Introduction

Polycystic ovary syndrome is the most prevalent endocrine disorder in women of reproductive age, with a prevalence ranging from 6% to 21%, contingent upon various studies, populations, and diagnostic criteria employed [1–3]. The pathophysiological causes of polycystic ovary syndrome are intricate and yet not fully understood. Environmental, genetic, and epigenetic variables significantly influence its etiology. It is widely acknowledged that hyperandrogenemia underlies the reproductive and metabolic disorders associated with the syndrome. Hyperandrogenism is a primary criterion for diagnosing the illness. The Rotterdam criteria, along with those established by the Androgen Excess Society and the National Institute of Health (NIH), constitute the primary points for diagnosing PCOS [3–5].

Journal of
Clinical Medicine

IMPACT FACTOR 2.9
Indexed in: PubMed
CITESCORE 5.2

Review

Reconsidering Hormone Replacement Therapy: Current Insights on Utilisation in Premenopausal and Menopausal Women: An Overview

Vesselina Yanachkova, Mariela Vasileva-Slaveva, Stoyan Kostov and Angel Yordanov

Special Issue
Gynecologic and Obstetric Pathologies: From Birth to Menopause (Third Edition)

Edited by
Dr. Panagiotis Christopoulos

MDPI

https://doi.org/10.3390/jcm14207156

Journal of
Clinical Medicine

MDPI

Review

Reconsidering Hormone Replacement Therapy: Current Insights on Utilisation in Premenopausal and Menopausal Women: An Overview

Vesselina Yanachkova [1,2,*,†], Mariela Vasileva-Slaveva [1,3], Stoyan Kostov [1,4] and Angel Yordanov [5,†]

1 Research Institute, Medica University Pleven, 5800 Pleven, Bulgaria
2 Department of Endocrinology, Specialized Hospital for Active Treatment of Obstetrics and Gynaecology "Dr Shterev", 1330 Sofia, Bulgaria
3 Department of Breast Surgery, Specialized Hospital for Active Treatment of Obstetrics and Gynaecology "Dr Shterev", 1330 Sofia, Bulgaria
4 Department of Gynecology, Hospital "Saint Anna", Medical University—"Prof. Dr. Paraskev Stoyanov", 9002 Varna, Bulgaria
5 Department of Gynecologic Oncology, Medical University-Pleven, 5800 Pleven, Bulgaria
* Correspondence: v_ess@abv.bg
† These authors contributed equally to this work.

Abstract

Hormone replacement therapy (HRT) has been utilized in clinical practice for decades as a main therapeutic approach for mitigating menopausal symptoms. The symptoms mostly encompass vasomotor and genitourinary issues resulting from the deficiency of estrogen and progesterone. Initially identified as a universally advantageous and indispensable intervention, hormone replacement therapy subsequently became the subject of considerable scientific and clinical debate, especially after the publication of extensive epidemiological studies indicating potential adverse effects associated with cardiovascular and cancer risk. This study aims to reassess the role of HRT in clinical practice by analyzing its historical evolution, expanded clinical uses, and changes in guidelines necessitated by resent scientific studies. Current evidence from clinical studies and meta-analyses unequivocally demonstrates that hormone replacement therapy is the most efficacious treatment for vasomotor and urogenital symptoms, and also acknowledging its potential role in osteoporosis prevention. The administration of HRT requires careful individual assessment, considering the patient's age, timing of initiation, existence of comorbidities. In this setting, therapy decisions have to be based on a combination of the most up-to-date clinical guidelines, risk stratification, and the patient's preferences. In conclusion, the assessment of HRT confirms its primary role in reducing menopausal symptoms while also highlighting the imperative for a individual strategy that balances benefits and risks to improve outcomes for women.

Keywords: hormone replacement therapy; menopause; perimenopause; menopausal transition

Academic Editor: Simone Ferrero

Received: 17 August 2025
Revised: 13 September 2025
Accepted: 7 October 2025
Published: 10 October 2025

Citation: Yanachkova, V.; Vasileva-Slaveva, M.; Kostov, S.; Yordanov, A. Reconsidering Hormone Replacement Therapy: Current Insights on Utilisation in Premenopausal and Menopausal Women: An Overview. *J. Clin. Med.* **2025**, *14*, 7156. https://doi.org/10.3390/jcm14207156

1. Introduction

Hormone replacement therapy is a treatment for women undergoing or who have completed menopause, aimed at restoring hormone levels to their normative state. Throughout the menopausal transition and during menopause, there is a decline in estrogen and progesterone levels. Women experiencing perimenopause and menopause may find HRT advantageous, as it is a contemporary approach that mitigates the aging process and enhances quality of life. This therapy is widely recognized for its anti-aging benefits [1,2]. The

medicina

IMPACT FACTOR 2.4

Indexed in: PubMed

CITESCORE 4.1

Review

Surgical Ovarian Suppression and Breast Cancer—What Do We Know About It?

Angel Yordanov, Ihsan Hasan, Mariela Vasileva-Slaveva, Eva Tsoneva, Stoyan Kostov and Vesselina Yanachkova

MDPI

https://doi.org/10.3390/medicina61111905

medicina

MDPI

Review

Surgical Ovarian Suppression and Breast Cancer—What Do We Know About It?

Angel Yordanov [1,*,†], Ihsan Hasan [2], Mariela Vasileva-Slaveva [3], Eva Tsoneva [4], Stoyan Kostov [5,6] and Vesselina Yanachkova [6,7,†]

1 Department of Gynecologic Oncology, Medical University-Pleven, 5800 Pleven, Bulgaria
2 Department of Obstetrics and Gynecology, University Hospital "Sofiamed", 1504 Sofia, Bulgaria; ihsan_hasanov@abv.bg
3 Department of Breast Surgery, Specialized Hospital for Active Treatment of Obstetrics and Gynaecology "Dr Shterev", 1330 Sofia, Bulgaria; sscvasileva@gmail.com
4 Department of Reproductive Medicine, Specialized Hospital for Active Treatment of Obstetrics and Gynaecology "Dr Shterev", 1330 Sofia, Bulgaria; dretsoneva@gmail.com
5 Department of Gynecology, Hospital "Saint Anna", Medical University—"Prof. Dr. Paraskev Stoyanov", 9002 Varna, Bulgaria; drstoqn.kostov@gmail.com
6 Research Institute, Medica University Pleven, 5800 Pleven, Bulgaria; v_ess@abv.bg
7 Department of Endocrinology, Specialized Hospital for Active Treatment of Obstetrics and Gynaecology "Dr Shterev", 1330 Sofia, Bulgaria
* Correspondence: angel.jordanov@gmail.com
† These authors contributed equally to this work.

Abstract

Breast cancer (BC) is the most common malignancy in women worldwide, with incidence projected to rise, particularly among younger patients. In premenopausal women with hormone receptor-positive disease, ovarian suppression is an established component of systemic therapy, most often achieved pharmacologically with gonadotropin-releasing hormone agonists (GnRHas). Bilateral salpingo-oophorectomy (BSO) represents a surgical alternative that ensures definitive suppression, eliminates compliance issues, and is more cost-effective in the long term. Despite these advantages, BSO induces irreversible menopause, associated with vasomotor symptoms, cardiovascular morbidity, bone loss, cognitive decline, and reduced quality of life. Evidence suggests that BSO is most appropriate in selected cases, including women unable to tolerate or adhere to medical suppression, those with inadequate estradiol suppression, patients approaching natural menopause, individuals with metastatic hormone receptor-positive disease, and carriers of BRCA1 mutations, especially with triple-negative tumors. Conversely, data on its benefit in BRCA2 carriers remain limited. Overall, BSO provides oncologic outcomes comparable to medical suppression but at the cost of permanent systemic effects. The decision between surgical and medical ovarian suppression should be individualized, balancing oncologic efficacy, comorbidities, genetic background, and patient preference. Further studies are needed to define the optimal duration of medical suppression and clarify the role of BSO in hereditary breast cancer.

Keywords: breast cancer; ovarian suppression; medical suppression; bilateral salpingo-oophorectomy

Academic Editor: Paolo Zola

Received: 20 September 2025
Revised: 20 October 2025
Accepted: 22 October 2025
Published: 24 October 2025

Citation: Yordanov, A.; Hasan, I.; Vasileva-Slaveva, M.; Tsoneva, E.; Kostov, S.; Yanachkova, V. Surgical Ovarian Suppression and Breast Cancer—What Do We Know About It? *Medicina* **2025**, *61*, 1905. https://doi.org/10.3390/medicina61111905

1. Introduction

Breast cancer (BC) is the most common cancer in women globally [1]. The number of new cases will ultimately continue rising by 2050 [2], with different trends in different age

PHARMACIA

Pharmacia 73: 1–10
DOI 10.3897/pharmacia.73.e184239

Review Article

Wearable health-tracking technologies in pregnancy: capabilities, clinical evidence, and implementation challenges

Afiyze Ahmedova[1], Nadia Veleva[1], Svetoslav Stoev[1], Elina Petkova-Gueorguieva[2], Vesselina Yanachkova[3,4], Hristina Lebanova[1]

1 *Faculty of Pharmacy, Medical University-Pleven, Pleven, Bulgaria*
2 *Faculty of Public Health, Medical University of Sofia, Sofia, Bulgaria*
3 *Research Institute, Medical University-Pleven, Pleven, Bulgaria*
4 *Specialized Hospital for Active Treatment of Obstetrics and Gynecology "Dr Shterev", Sofia, Bulgaria*

Corresponding author: Hristina Lebanova (hristina.lebanova@mu-pleven.bg)

Received 4 January 2026 ♦ **Accepted** 17 January 2026 ♦ **Published** 2 February 2026

Citation: Ahmedova A, Veleva N, Stoev S, Petkova-Gueorguieva E, Yanachkova V, Lebanova H (2026) Wearable health-tracking technologies in pregnancy: capabilities, clinical evidence, and implementation challenges. Pharmacia 73: 1–10. https://doi.org/10.3897/pharmacia.73.e184239

Abstract

Wearable health-tracking technologies are increasingly incorporated into prenatal care to enable continuous, noninvasive monitoring of maternal and fetal health. Devices such as smartwatches, fitness trackers, smart rings, and medical-grade biosensors can collect longitudinal data on physiological parameters, including heart rate, physical activity, sleep patterns, and pregnancy-specific indicators. When integrated with mobile health (mHealth) platforms and artificial intelligence (AI)–based analytics, these technologies offer opportunities for earlier identification of pregnancy-related complications and more personalized care. This narrative review summarizes current evidence on the application of wearable technologies during pregnancy, with a focus on monitoring capabilities, clinical utility, and integration into prenatal healthcare. Relevant peer-reviewed literature published between 2015 and 2025 was identified through searches of PubMed, Scopus, Web of Science, and Google Scholar. The reviewed literature indicates that wearable devices show promise for monitoring maternal activity, sleep, and cardiovascular parameters, while emerging systems aim to assess fetal heart rate, movement, and uterine activity. However, variability in data accuracy, limited clinical validation, privacy concerns, and user acceptance challenges continue to constrain widespread implementation. Further large-scale, methodologically robust studies and standardized regulatory frameworks are needed to support the safe and effective integration of wearable technologies into routine prenatal care.

Keywords

artificial intelligence, digital health, maternal health, mHealth, pregnancy monitoring, prenatal care, wearable sensors

Introduction

Maternal health during pregnancy is a key determinant of both individual and population health outcomes (Zar et al. 2019). Despite substantial advances in obstetric care, maternal morbidity and mortality remain major global challenges, with an estimated 287,000 maternal deaths reported worldwide in 2020, most resulting from preventable pregnancy-related complications (WHO 2023). These figures underscore the need

medicina

IMPACT FACTOR 2.4

Indexed in: PubMed

CITESCORE 4.1

Article

Patient-Reported Epigastric Symptom Dynamics During Trimebutine Maleate Treatment: A Post-Marketing Study

Svetoslav Stoev, Vesselina Yanachkova, Elina Petkova-Gueorguieva, Stanislav Gueorguiev, Violeta Getova-Kolarova, Hristina Lebanova and Vasil Koynarski

MDPI

https://doi.org/10.3390/medicina62030499

medicina

MDPI

Article

Patient-Reported Epigastric Symptom Dynamics During Trimebutine Maleate Treatment: A Post-Marketing Study

Svetoslav Stoev [1,*], Vesselina Yanachkova [2,3], Elina Petkova-Gueorguieva [4], Stanislav Gueorguiev [5], Violeta Getova-Kolarova [6], Hristina Lebanova [1] and Vasil Koynarski [7]

1 Department of Pharmaceutical Sciences and Social Pharmacy, Faculty of Pharmacy, Medical University-Pleven, 5800 Pleven, Bulgaria
2 Research Institute, Medical University-Pleven, 5800 Pleven, Bulgaria
3 Department of Endocrinology, Specialized Hospital for Active Treatment of Obstetrics and Gynecology Dr. Shterev, 1330 Sofia, Bulgaria
4 Department of Health Management and Health Economics, Faculty of Public Health, Medical University of Sofia, 1000 Sofia, Bulgaria
5 Department of Pharmaceutical Sciences, Faculty of Pharmacy, Medical University Plovdiv, 4002 Plovdiv, Bulgaria
6 Department "Organization and Economics of Pharmacy", Faculty of Pharmacy, Medical University of Sofia, 1000 Sofia, Bulgaria
7 VITA Multiprofile Hospital for Active Treatment, 1407 Sofia, Bulgaria
* Correspondence: svetoslav.stoev@mu-pleven.bg

Abstract

Background and Objectives: This prospective, non-interventional, multicenter study aims to assess the therapeutic effectiveness of trimebutine maleate in patients with functional gastrointestinal disorders (FGIDs) by patient-reported outcomes. *Materials and Methods:* The study encompassed 2501 patients from 50 clinical sites diagnosed with irritable bowel syndrome, functional dyspepsia, or other functional gastrointestinal diseases. A validated questionnaire, an adapted version of the Izumo scale, was employed for self-assessment of symptoms and quality of life related to gastrointestinal issues. *Results:* The findings indicate a significant decrease in symptom severity, encompassing epigastric pain, dyspeptic symptoms, and defecation difficulties, as early as the second visit, with mean pain scores declining from 2.65 to 0.46 ($p < 0.001$). *Conclusions:* The data validate trimebutine's profile as a well-tolerated and efficacious therapy for patients with IBS in real-world clinical practice in Bulgaria. The findings endorse the prospective inclusion of trimebutine as a treatment option in forthcoming clinical guidelines.

Keywords: trimebutine maleate; patient-reported outcomes; functional gastrointestinal disorders

Academic Editors: Vishal G. Shelat and Ludovico Abenavoli

Received: 12 January 2026
Revised: 13 February 2026
Accepted: 4 March 2026
Published: 7 March 2026

1. Introduction

Functional gastrointestinal disorders (FGIDs) comprise a category of illnesses defined by persistent or recurrent symptoms lacking identifiable biological, biochemical, or metabolic origins. The most prevalent among these are irritable bowel syndrome (IBS), functional dyspepsia, and gastroesophageal reflux disease (GERD). While these illnesses do not correlate with heightened mortality, they impose a considerable burden on patients due to persistent symptoms, diminished daily functioning, and a decline in health-related quality of life [1]. Consequently, conventional clinical or laboratory metrics frequently do not accurately reflect the disease's actual effect on individuals' well-being. In this setting,