

ONMedU, Department of Obstetrics and Gynecology. Practical lesson No. 3 "Gynecological endocrinology"

**MINISTRY OF HEALTH PROTECTION OF UKRAINE
ODESSA NATIONAL MEDICAL UNIVERSITY**

Faculty international

Department of Obstetrics and Gynecology

 **APPROVED**
Vice-rector for scientific and pedagogical work
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**METHODICAL DEVELOPMENT FOR PRACTICAL LESSONS
FROM ELECTIVE DISCIPLINE**

Faculty international, 6th year

Elective discipline "OBSTETRICS AND GYNECOLOGY IN THE PRACTICE OF A
FAMILY DOCTOR"

Practical class N3. Gynecological endocrinology

Meeting of the Department of Obstetrics and Gynecology
Odessa National Medical University

Protocol No. 1 dated August 29, 2024

Head of the department _____ (Ihor HLADCHUK)

Developers:

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Practical lesson No. 3

Topic :Gynaecological endocrinology.

Goal:To learn to identify the etiological and pathogenetic factors of the main diseases of the reproductive system, which lead to a violation of its function. Learn how to assess the patient's condition and medical criteria in making a diagnosis. Learn the examination plan of a patient with a violation of the neuroendocrine regulation of the genitals. Master counseling on issues of neuroendocrine regulation of genital function. To learn how to apply modern examination methods for making a diagnosis of this category of patients of various ages.

Basic concepts:

Physiological and pathological states of the reproductive system in different age periods. Violation of menstrual function. AMK. Osteoporosis. Densinometry. Standard examination of women.

Equipment:Professional algorithms, structural and logical schemes, tables, models, video materials, results of laboratory and instrumental studies, situational problems, patients, medical histories.

I. Organizational measures (greetings, verification of those present, announcement of the topic, purpose of the lesson, motivation of higher education seekers to study the topic).

Normal menstrual function is carried out as a result of the synchronous interaction of important links of neuroendocrine regulation. In this regulation system, five levels are distinguished. Violations in a complex regulatory system can occur at different levels. At the same time, menstrual cycle disorders of different nature and severity occur: from uterine bleeding to amenorrhea. Violations of menstrual function are often the cause of a decrease in a woman's reproductive function and her working capacity, with some forms of disorders there may be a risk of developing precancerous diseases and endometrial cancer. Acquisition of theoretical and practical knowledge, skills and abilities by students provides an opportunity to improve and strengthen professional development in further study of the subject.

2. Control of the reference level of knowledge (written work, written test, online test, face-to-face survey, etc.).

- ***Knowledge requirements:***

Methodical development of a practical lesson, OPP "Medicine", 6th year, Faculty of Medicine.
Elective discipline: "Obstetrics and gynecology in the practice of a family doctor"

- communication and clinical patient examination skills;
- the ability to determine the list of necessary clinical and laboratory and instrumental studies and evaluate their results;
- the ability to establish a preliminary and clinical diagnosis of the disease;
- the ability to determine the necessary mode of work and rest in the treatment and prevention of diseases;
- the ability to determine the nature of nutrition in the treatment and prevention of diseases;
- the ability to determine the principles and nature of treatment and prevention of diseases;
- the ability to diagnose emergency conditions;
- the ability to determine tactics and provide emergency medical assistance;
- the ability to perform medical manipulations.

- ***List of didactic units:***

- Physiological and pathological states of the reproductive system in different age periods.
- Violation of menstrual function.
- Abnormal uterine bleeding.
- Standard examination of women.
- Osteoporosis.
- Densitometry.

- ***Questions (test tasks, tasks, clinical situations) to check basic knowledge on the topic of the seminar:***

Question:

1. Neurohumoral regulation of the menstrual cycle
2. Amenorrhea: forms, diagnosis, treatment
3. Reasons for the development of AMC in women of reproductive age.
4. Classification of AMC
5. Algorithm of examination of a patient with AMC
6. Abnormal uterine bleeding in the reproductive age.
7. Abnormal uterine bleeding in the climacteric age.
8. Therapeutic measures for women in menopause and postmenopause
9. Indications for surgical treatment of patients with AMC
10. Osteoporosis. Algorithm for tracking women with signs of osteoporosis.
11. Algorithm of examination of a woman in different age periods.
12. Premenstrual syndrome.

13. Climacteric syndrome.

14. Quality of life of a woman during menopause.

Typical situational tasks:

1. A 20-year-old woman has had no menstruation for 11 months. Menstruation began at the age of 16, for 1-2 days, in small quantities, very painful, and irregular. During a gynecological examination: the cervix is long, the vagina is narrow, the uterus is very small, the appendages are not palpable.

1. Establish a preliminary diagnosis.

2. Develop and prescribe an examination and treatment plan.

Answer: Secondary amenorrhea Genital infantilism.

Algorithm examination Gynecological review. Dab on flora and cytomorphology. Clinical and laboratory examination methods: OAC, OAM, blood biochemistry. Hormonal examination (FSH, LH, PRL, Estradiol). ultrasound examination of the pelvic organs

2. A 26-year-old patient complains of heavy discharge during menstruation for 8-12 days. During a gynecological examination: the uterus is spherical, sensitive, and less mobile. The appendages are not palpable. Diagnosis? Examination algorithm.

Answer: Abnormal uterine bleeding. Adenomyosis.

To clarify the diagnosis, carry out:

Gynecological examination. Clinical and laboratory examination methods: OAC, OAM, blood biochemistry. Hormonal monitoring. Smear on flora cytomorphology. ultrasound examination of the pelvic organs.

Typical test tasks:

1. A 24-year-old woman with a regular menstrual cycle previously turned to a doctor with complaints about an irregular menstrual cycle. The level of prolactin in the blood was elevated.

The most informative research method?

A. Determination of the level of gonadotropins.

B. Determination of the level of prolactin in the blood.

S. Test with progesterone.

D Determination of the level of thyroid-stimulating hormone.

E. Determination of the level of testosterone in the blood.

2. A 38-year-old patient turned to a women's consultation with complaints about moderate bleeding from the genital tract, which appeared after the next menstruation was delayed for 1.5 months. During a gynecological examination: the cervix is epithelialized, the "pupil" symptom (++), the uterus was not enlarged, dense, mobile, painless, the appendages on both sides were not enlarged, painless, the contractions were deep.

The most likely diagnosis?

- A. Abnormal uterine bleeding.
- B. Internal endometriosis.
- S. Ectopic pregnancy.
- D Submucous myoma of the uterus.
- E. Cancer of the uterine body.

3. A 12-year-old girl came to the gynecological department with complaints of bleeding from the genital tract for 2 weeks, after delay of menstruation for 3 months, weakness, headache, dizziness. Menstruation since 10 years. At the age of 10, she was ill with scarlet fever. Objectively: pale skin, tachycardia, blood pressure - 100/60. In the blood test, Hb=100 g/l, the number of platelets is 200,000. Gynecological examination: virgo. During rectal examination: body of the uterus and appendages without pathology. Previous diagnosis?

- A. Juvenile uterine bleeding.
- B. Disturbed pregnancy.
- S. Werlhof's disease.
- D. Syndrome of sclerocystic ovaries.
- E. Hemorrhagic diathesis.

Correct answers: 1D, 2A, 3A

3. Formation of professional abilities and skills (mastery of skills, curation, determination of treatment regimen, laboratory research, etc.):

- ***Content of tasks (tasks, clinical situations, etc.):***

Interactive task:

Students of higher education are divided into 3 subgroups. We work in the consulting room for women of different age periods, we give tasks:

Tasks for subgroups

And a subgroup. Collect the obstetric and gynecological and somatic anamnesis of a woman with a violation of the menstrual cycle (AMK during puberty), determine the list of necessary clinical, laboratory and instrumental studies, establish a preliminary and clinical diagnosis of the disease

II subgroup. Draw up a plan for examination and treatment of a woman during menopause and determine management tactics.

III subgroup. Evaluate the correctness of the answers of subgroups I and II, if necessary, introduce corrections.

Unusual situational tasks

1. A 48-year-old patient approached an obstetrician-gynecologist with complaints of bleeding from the genital tract. From the anamnesis: menstruation since the age of 14, established immediately (4-5 days after 28 days), moderate, painless. For the last 2 years, the intervals between periods have been 2-3 months. 15 days ago, after a 2-month absence of menstruation, uterine bleeding began, which continues to this day.

During the examination: the skin and visible mucous membranes are pale, the pulse is 76 bpm, blood pressure - 110/80 mmHg, hemoglobin - 100g/l. The abdomen is soft, painless on palpation.

Bimanual examination of the internal genital organs revealed no pathology.

■ Make a diagnosis.

Abnormal uterine bleeding. Perimenopausal period. Secondary anemia.

■ What additional laboratory and instrumental research methods should be prescribed?

1. Ultrasound of the pelvic organs, 2. Hormonal research. 3. Biopsy of the endometrium: (Aspirate from the cavity, Fractional therapeutic and diagnostic scraping of the uterine cavity, hysteroscopy

■ What does treatment tactics depend on?

From the results of histological examination of the endometrium.

■ What should be prescribed to treat anemia?

Balanced nutrition (foods containing iron) and anti-anemic drugs.

* In a 53-year-old woman, a histological examination of the endometrium - atypical endometrial hyperplasia - was obtained after performing FDV of the uterine cavity due to uterine bleeding.

■ What should be done with the patient in the future?

Recommend surgical treatment.

■ To what extent?

Extermination of the uterus with appendages, in case of refusal to carry out drug therapy in the amount of RHG.

■ What violation did the doctor commit when choosing the tactics of surgical treatment?

Given that the patient is no longer of reproductive age, she should have been recommended radical surgical treatment, namely hysterectomy with appendages.

Diagnosis: Secondary amenorrhea

Non-typical test tasks KROC-2(:2018)

1. A 38-year-old patient turned to a women's consultation with complaints of moderate bloody discharge from the genital tract, which occurred after the next menstruation was delayed for 1.5 months. During the vaginal examination: the cervix is not eroded, the "pupil" symptom (+++); the uterus is not enlarged, dense, mobile, painless; appendages on both sides are not enlarged, painless; vaults are deep. What is the most likely diagnosis?

- A. Abnormal uterine bleeding
- B. Internal endometriosis of the uterine body
- C. Ectopic pregnancy
- D. Uterine pregnancy
- E. Cancer of the uterus

2. A 54-year-old woman came to the gynecologist with complaints of vaginal bleeding for 1 month. The last menstruation was 5 years ago. No pathology was detected during the gynecological examination. What will be the doctor's actions?

- A. Fractional diagnostic scraping of the walls of the uterine cavity
- V. Colposcopy
- S.UZD

- A. Take a swab for cytological examination
- B. Prescribe symptomatic therapy until additional research results are obtained

Correct answers: 1. V., 2.A.

4. Recommendations (instructions) for the performance of tasks (professional algorithms, orienting maps for the formation of practical skills and abilities, etc.):

Classification of menstrual cycle disorders

Term	Definition
Amenorrhea	absence of menstruation for 6 months or more
Abnormal uterine bleeding	this is abundant, frequent or prolonged bleeding from the uterus (hyper-, poly-, proymenorrhoea), not associated with organic pathology of the pelvic organs, systemic diseases or complications of pregnancy
Neuro-endocrine syndromes	these are clinical symptom complexes in which changes in the functional state of the patient's reproductive system are combined with a violation of the functional state of other body systems, which, like the reproductive system, are regulated by the hypothalamic-pituitary department of the nervous system
Hypomenstrual syndrome	weakening of menstruation, manifested in their shortening, thinning, reduction of blood loss (oligo-, hypo-, opsomenorrhoea)
Premenstrual syndrome	a symptom complex characterized by various psycho-emotional, vegetative-vascular and metabolic-endocrine disorders that manifest themselves in the luteal phase of the menstrual cycle
Climacteric syndrome	a symptom complex characterized by neuro-psychological, vascular-vegetative and metabolic-endocrine disorders arising against the background of estrogen deficiency

	caused by age-related changes in ovarian function
Dysmenorrhea	Dysmenorrhea is a general disorder during menstruation (pain in the lower back, lower abdomen, headache, nausea, lack of appetite, excitement);
Algodysmenorrhea	it is a violation of the menstrual cycle, the main clinical manifestation of which is a pain syndrome during menstruation, which occurs on the first day or a few days before it and continues throughout the menstruation and even after it

Climacteric disorders

1. group	Vasomotor	Hot flashes, increased sweating, headache, hypo- or hypertension, heartbeat, tachycardia
	Emotional and mental	Irritability, drowsiness, weakness, depression, memory loss, decline libido, inattention.
2 group	Urogenital	Dryness of the mucous membrane of the vagina, pain with sexual intercourse, itching, urethral syndrome (frequent urination)
3 group	Skin and its appendages	Dryness, brittle nails, wrinkles, dryness and hair loss.
	Late metabolic disorders	Osteoporosis, cardiovascular diseases

Violation of the frequency of menstruation

- 1) *frequent menstruation (proyomenorrhoea)*-the duration of the menstrual cycle is less than 21 days,
- 2) *infrequent menstruation (opsomenorrhoea)*- the length of the menstrual cycle is more than 35 days,

2. Violation of the amount of menstrual blood that is lost:

- 1) *scanty menstruation (hypomenorrhea)*observed in hypoplasia of the uterus and ovaries, hypofunction of the ovaries, chronic endometritis, after surgical interventions.
- 2) *heavy menstruation (hypermenorrhea)*emphasized in inflammatory processes, hypoplasia of the uterus, prolonged involution of the corpus luteum, hyperestrogen

3. Violation of the duration of menstruation:

No	Parameters	Norm	AMK
1.	Frequency	The interval between the first day of menstruation in adjacent cycles is from 24 to ≤ 38 days	Absence of menstruation (amenorrhea) Menstruation with an interval of ≥ 38 (rare) Menstruation with intervals ≤ 24 days (frequent)
2.	Duration of menstruation	≤ 8 days	≥ 8 days
3.	Regularity	Variability of the longest and shortest cycle within $\leq 7-9$ days	Variability of the longest and shortest cycle within $\leq \geq 8-9$ days

4.	Volume	Normal	Scarce are abundant
5.	Intermenstrual bleeding	there is no	Cyclic acyclic

Classification of causes of AMC (PALM/COEIN)

Structural	Non-structural
P-polyps	C-Coagulopathy
A-Adenomyosis	O-violation of ovulation
L-Leiomyoma	E-Pathology of the endometrium
M-Malignant tumors, hyperplasia	I-Iatrogenic
	N-unclassified

- **Acute AMK**- these are episodes of bleeding in non-pregnant women of reproductive age, the intensity of which requires immediate intervention to prevent further blood loss.
- **Chronic AMC**- these are bleedings with deviations from the norm in terms of duration, volume and/or frequency, which occur during most of the last 6 months.
- **Heavy menstrual bleeding (TMK)** - excessive menstrual blood loss, which negatively affects a woman's physical condition, social, emotional and/or material aspects of her life. TMK can manifest itself or in combination with other symptoms.
- **DIAGNOSTIC ALGORITHM**examination of a patient with AMC

AMK - abnormal uterine bleeding against the background of endometrial dysfunction, in particular, insufficiency of the luteal phase of the menstrual cycle; AMKO - abnormal uterine bleeding as a result of ovulation disorders.

Differential

diagnosis

When determining the diagnosis of TMK, it is necessary to exclude the presence of structural pathologies, as well as bleeding associated with pregnancy. The diagnosis and

treatment of abnormal uterine bleeding of organic origin have their own specificity and are described in the relevant protocols. In adolescence, abnormal uterine bleeding is mainly caused by ovulation disorders associated with the immaturity of the hypothalamic-pituitary-ovarian regulation (AMK-O). In patients of this category, special attention should be paid to the exclusion of AMC caused by somatic pathology (coagulopathy, etc.) and bleeding due to arterio-venous malformations of the uterus.

Preparation	Single dose	Time
COOK	Monophasic (30–35 µg of ethinyl estradiol)	3 times a day for 7 days or up to 4-5 times a day for 3-5 days, then decrease every 2 days by 1 tablet, the total term of COC use is at least 20 days
Tranexamic acid	1.5 g orally or 10 mg/kg i.v	3 times a day for 5 days every 8 hours
Linestrol	5 mg orally	3 times a day for 7 days

Control materials for the final stage of the lesson: problems, tasks, tests, etc

Unusual situational tasks:

A 20-year-old woman has had no menstruation for 11 months. Menstruation began at the age of 16, for 1-2 days, in small quantities, very painful, and irregular. During a gynecological examination: the cervix is long, the vagina is narrow, the uterus is very small, the appendages are not palpable.

1. Establish a preliminary diagnosis.
2. Develop and prescribe an examination and treatment plan.
3. With what it is necessary to carry out differential diagnosis in this pathology

Answer: Secondary amenorrhea Genital infantilism. Algodysmenorrhea.

Algorithm examination Gynecological review: General and gynecological examination, ultrasound examination of pelvic organs, computer or magnetic resonance imaging. Hormonal studies: LH, FSH, PRL, E₂, androgens - as indicated. Dab on flora and cytomorphology.

Clinical and laboratory examination methods: OAC, OAM, blood biochemistry. Hormonal examination (FSH, LH, PRL, Estradiol). ultrasound examination of the pelvic organs

Task 2:. A 48-year-old patient approached an obstetrician-gynecologist with complaints of bleeding from the genital tract. From the anamnesis: menstruation since the age of 14, established immediately (4-5 days after 28 days), moderate, painless. For the last 2 years, the intervals between periods have been 2-3 months. 15 days ago, after a 2-month absence of menstruation, uterine bleeding began, which continues to this day.

During the examination: the skin and visible mucous membranes are pale, the pulse is 76 bpm, blood pressure - 110/80 mmHg, hemoglobin - 100g/l. The abdomen is soft, painless on palpation.

Bimanual examination of the internal genital organs revealed no pathology.

■ Make a diagnosis.

Abnormal uterine bleeding. Secondary anemia.

■ What additional laboratory and instrumental research methods should be prescribed?

1. Ultrasound of the pelvic organs,

2. *Hormonal study.*

3. *Endometrial biopsy: Aspirate from the cavity, Fractional therapeutic and diagnostic scraping of the uterine cavity, hysteroscopy*

■ What does treatment tactics depend on?

From the results of histological examination of the endometrium.

■ What should be prescribed to treat anemia?

Balanced nutrition (foods containing iron) and anti-anemic drugs.

* In a 53-year-old woman, a histological examination of the endometrium - atypical endometrial hyperplasia - was obtained after performing FDV of the uterine cavity due to uterine bleeding.

■ What should be done with the patient in the future?

Recommend surgical treatment.

■ To what extent?

Extermination of the uterus with appendages, in case of refusal to carry out drug therapy in the amount of RHG.

■ What violation did the doctor commit when choosing the tactics of surgical treatment? Given that the patient is no longer of reproductive age, radical surgical treatment should be recommended, namely hysterectomy with appendices

STEP-2 test tasks (2019-2021)

1. A 27-year-old woman complains of irregular menstruation with delays of up to 2-3 months, a significant increase in body weight, hirsutism. Married for 5 years. There were no pregnancies. During vaginal examination, the uterus is slightly smaller per norm, dense, mobile ovaries up to 4-5 cm in size are determined on both sides. Previous diagnosis?

- A. Polycystic ovary disease
- B. Bilateral chronic salpingitis
- C. Bilateral ovarian cysts
- D. Tuberculosis of the uterine appendages
- E. Hypomenstrual syndrome

2. A woman came to the family doctor with complaints of fatigue, significant weight loss, weakness, loss of appetite. Amenorrhea 8 months. She gave birth a year ago live full-term baby. Blood loss during childbirth is up to 2 liters. Blood was spilled and blood substitutes. What is the most likely diagnosis?

- A. Stein-Leventhal syndrome
- B. Sheehan's syndrome
- C. Shereshevsky-Turner syndrome
- D. Homologous blood syndrome
- E. Vegeto-vascular dystonia

3. A 26-year-old woman complains of body swelling, swelling and pain mammary glands, headache, tearfulness, irritability arising from

4. days before menstruation and disappear with its onset.

What clinical syndrome is observed in a woman?

- A. Premenstrual syndrome
- B. Postcastration syndrome
- C. Adrenogenital syndrome
- D. Climacteric syndrome
- E. Stein-Leventhal syndrome

4. A woman, 49 years old, complains of a headache, hot flushes to the head, neck, increased sweating, palpitations, increased blood pressure to

170/100 mm Hg. art., irritability, insomnia, tearfulness, memory loss, infrequent scanty menstruation, an increase in body weight by 5 kg during the last period half year. Your diagnosis?

- A. Premenstrual syndrome
- B. Climacteric syndrome
- C. Vegetovascular dystonia
- D. Arterial hypertension
- E. Postcastration syndrome

Answer: 1-A, 2-B, 3-A, 4-B.

4. Summing up(criteria for evaluating learning outcomes).

Current control:oral survey, assessment of communication skills during role play, solving situational clinical tasks, assessment of activity in class.

Final control: balance

Evaluation of the current educational activity at the seminar session:

1. Evaluation of theoretical knowledge on the subject of the lesson:
 - methods: survey, solving a situational clinical problem
 - the maximum score is 5, the minimum score is 3, the unsatisfactory score is 2.
2. Evaluation of work with patients on the subject of the lesson:
 - methods: assessment of: a) communicative skills of communicating with 1 patient b) the correctness of prescribing and evaluating laboratory and instrumental studies before using a contraceptive c) the ability to conduct family planning counseling.
 - the maximum score is 5, the minimum score is 3, the unsatisfactory score is 2.
- The grade for one seminar session is the arithmetic average of all components and can only have a whole value (5, 4, 3, 2), which is rounded according to the statistical method.

Current assessment criteria at the seminar session

Assessment	Evaluation criteria
"5"	The applicant is fluent in the material, takes an active part in discussing and solving a situational clinical problem, confidently demonstrates the skills of counseling on family planning and the correct appointment of laboratory and instrumental studies before using a contraceptive, expresses his opinion on

	the subject of the class, demonstrates clinical thinking.
"4"	A student of higher education has a good command of the material, participates in the discussion and solution of a situational clinical problem, demonstrates the skills of counseling on family planning and the correct appointment of laboratory and instrumental studies before using a contraceptive with some errors, expresses his opinion on the subject of the lesson, demonstrates clinical thinking.
"3"	The student of higher education does not have sufficient knowledge of the material, is unsure of participating in the discussion and solution of a situational clinical problem, demonstrates the skills of counseling on family planning and the correct appointment of laboratory and instrumental studies before using a contraceptive with significant errors.
"2"	The student of higher education does not possess the material, does not participate in the discussion and solution of the situational clinical problem, does not demonstrate the skills of counseling on family planning and the correct appointment of laboratory and instrumental studies before using a contraceptive.

5. List of recommended literature.

Main:

1. Obstetrics and gynecology: in 2 books. - Book 1. Midwifery: a textbook (University III-IV: r.a.) / V.I. Hryshchenko, M.O. Shcherbiny and others. - K.: Medicine, 2020. - 424 p.

Methodical development of a practical lesson, OPP "Medicine", 6th year, Faculty of Medicine.
Elective discipline: "Obstetrics and gynecology in the practice of a family doctor"

2. Obstetrics and gynecology: National a textbook for medical universities of IV accreditation levels in 4 vols.// Nat. textbook in 4 volumes / V. M. Zaporozhan, T. F. Tatarchuk, I. Z. Gladchuk, V. V. Podolsky, N. M. Rozhkovska, V. G. Marichereda, A. G. Volyanska. - K.: VSV "Medicine", 2017. - 696 c.
3. Clinical Obstetrics and Gynaecology: 4th Edition / Brian A. Magowan, Philip Owen, Andrew Thomson. - 2021. - 454 p.
4. Oats, Jeremy Fundamentals of Obstetrics and Gynecology [Text]: Liewellyn-Jones Fundamentals of Obstetrics and Gynecology / J. Oats, S. Abraham. - 10th ed. – Edinburgh [etc.]: Elsevier, 2017. – VII, 375 p.

Additional:

1. Diagnostics of obstetric and gynecological endocrine pathology: [educational manual for intern doctors and trainee doctors of institutions (fac.) post-diploma. of Education of the Ministry of Health of Ukraine] / edited by V.K. Likhachev; V.K. Likhachev, L.M. Dobrovolska, O.O. Taranovska and others; UMSA (Poltava). – Vinnytsia: E.V. Maksimenko Publisher, 2019. – 174 p.
2. Zaporozhian V.M. Simulation medicine. Experience. Acquisition Prospects: practice. advisor / V.M. Zaporozhian, O.O. Tarabrin – Sumy: University. Book, 2018. – 240 p.
3. Current "Clinical protocols", approved by order of the Ministry of Health of Ukraine for Obstetrics and Gynecology.

Internet sources for preparation:

- 1.<https://www.cochrane.org/>
- 2.<https://www.ebcog.org/>
- 3.<https://www.acog.org/>
- 4.<https://www.uptodate.com>
- 5.<https://online.lexi.com/>
- 6.<https://www.ncbi.nlm.nih.gov/>
- 7.<https://pubmed.ncbi.nlm.nih.gov/>
- 8.<https://www.thelancet.com/>
- 9.<https://www.rcog.org.uk/>
- 10.<https://www.npwh.org/>