

# OBSTETRICS AND GYNECOLOGY

Total credits: <b>18</b>	Theory credits: <b>6</b>	Practical credits: <b>12</b>
-----------------------------	-----------------------------	---------------------------------

## GENERAL OBJECTIVES

This subject is designed to provide students with the theoretical knowledge and clinical skills that will enable them to identify, determine a correct diagnosis through the reasoned use of current diagnostic methods and treat the principal conditions presented in obstetrics and gynecology practice.

## SPECIFIC OBJECTIVES

At the end of the training process, students should:

a) have broadened and completed their *basic knowledge of the anatomy and physiology of the female genital apparatus*, specifically:

- Anatomy of the female genital apparatus.
- Ovarian hormones, hypothalamus and gonadotrophin hormones.
- Ovarian and endometrial cycle.
- Neuroendocrine regulation of the genital cycle.
- Gametogenesis, fertilization and implantation.
- Placental organogenesis; anatomy and physiology of the placenta, ovular membranes and amniotic fluid.
- Endocrinology and immunology of gestation.
- Development and growth of the embryo and fetus.

b) have acquired the sufficient knowledge and skills required for *normal care during pregnancy and childbirth*, specifically in the following areas:

- Appropriate preparation of clinical history and implementation of examination methods.
- Diagnosis of pregnancy.
- Alterations in the mother during gestation.
- Prenatal care for normal pregnancies.
- Appropriate administration of drugs, with due evaluation of contraindications, and knowledge of the effect of drugs on gestation.
- Prenatal diagnosis of congenital anomalies.
- The classification of high-risk patients and the factors of maternal and prenatal morbimortality.
- Evolution and care during childbirth.
- Analgesia in normal childbirth.

c) be able to identify the *principal problems in the pathology of pregnancy, childbirth and puerperium*, specifically in:

- Abortion.
- Ectopic pregnancy.
- Trophoblastic disease.
- Associated pathology: cardiopathies and anemia; digestive pathology; hypertensive states; diabetes and other metabolopathies; viral and bacterial infections.
- Placenta previa and premature detachment of the normally positioned placenta.
- Perinatal hemolytic disease.

- Evaluation, diagnosis and treatment of prolonged gestation and intrauterine growth retardation.
- Multiple gestation.
- Podalic version.
- Mechanical and dynamic dystocia.
- Premature birth, premature rupture of membranes, chorioamnionitis and prolapse of the umbilical cord.
- Fetal distress during labour.
- Anomalies and hemorrhages during childbirth.
- Puerperal infections.
- Knowledge of obstetric surgery.

d) have acquired sufficient training and skills for **the appropriate preparation of an anamnesis and basic examination in gynecology, and knowledge of when to request complementary tests, particularly cytology, colposcopy and biopsy.**

e) have acquired the basic knowledge for the **diagnosis and treatment of the principal gynecological pathologies** specifically:

- Infections of the low and pelvic genital tract.
- Pelvic pain, premenstrual tension syndrome, dysmenorrhea.
- Benign pathology of the vulva, vagina and cervix.
- Endometriosis.
- Uterine myoma.
- Benign ovarian tumors.
- Genital prolapse and incontinence.
- Benign breast tumors.

f) have acquired knowledge on the basic aspects of **early diagnosis of gynecological cancer, epidemiology, diagnosis and treatment** in the following areas:

- Foundations of oncological gynecology treatment.
- Early diagnosis of gynecological cancer, with particular focus on screening techniques.
- Cancer of the vulva, vagina and cervix.
- Cancer of the endometrium, uterine sarcoma and fallopian tube cancer.
- Ovarian cancer.
- Breast cancer.

g) have acquired knowledge of the **indications, types and side effects of contraception**, related to:

- Natural methods, chemical-mechanical contraception.
- Hormonal contraception.
- Intrauterine devices, tubal occlusion and vasectomy.

h) have acquired knowledge of **gynecological endocrinology and sterility**, specifically in the following areas:

- Normal and pathological puberty.
- Climacterium and menopause.
- Congenital malformations of the female genital apparatus.
- Intersexual states.
- Amenorrhea.
- Dysfunctional uterine hemorrhage.
- Sterility, infertility.

i) have acquired a basic theoretical-practical knowledge of the principal surgical techniques in gynecology, through observation and participation in common procedures used in this specialty.

## PROGRAMME

### Theory

#### 1. Ovarian cycle

Clinical changes in the ovarian follicles. Associated hormonal secretions and effect on target organs (endometrium, fallopian tubes, cervix, vagina and mammary gland).

#### 2. Ovarian hormones. Gonadotrophins. Hypothalamic hormones

Biosynthesis and metabolism of steroid hormones. Estrogens, gestagens and androgens.

#### 3. Neuroendocrine regulation of the genital cycle

Integration of the ovarian and menstrual cycles with the upper hypothalamo-hypophyseal centres. Mechanisms regulating the cyclicity of morphofunctional changes in the female genital apparatus.

#### 4. Gametogenesis. Fertilization. Implantation

Biological bases and procedures that lead to the creation of a new life. Development of the ovum in its first stages.

#### 5. Endocrinology and immunology of gestation

Physiology and functions of the placenta, with particular focus on endocrine function. Immunobiological bases of pregnancy and possible effect of deleterious immune factors on gestation.

#### 6. Development and growth of the embryo and fetus

Embryonic and fetal periods. Embryonic and fetal organ development. Fetal physiology.

#### 7. Diagnosis of gestation. Physiological modifications in the mother during gestation

Physiological changes produced during pregnancy in the organ systems and apparatus of the mother. Changes in genital apparatus that allow clinical diagnosis of gestation. Complementary diagnostic methods for pregnancy.

#### 8. Prenatal care for normal pregnancies

Prenatal consultations, successive consultations and psycho-physical preparation. Risk assessment.

#### 9. Fetal well-being during gestation

Biochemical methods, hormonal methods and biophysical methods. Fetal acid-base balance (obtained from blood sample).

#### 10. Medicines and drugs during pregnancy

Concept of *teratogenesis*. Fetoplacental pharmacokinetics. Medicines during lactation. Drug addiction and pregnancy.

#### 11. Congenital anomalies. Prenatal detection and diagnosis

Concept, frequency and epidemiology. Causes of congenital anomalies. Prenatal infections and fetal anomalies. Prevention of congenital anomalies. Indications for prenatal diagnosis. Invasive procedures in prenatal diagnosis.

#### 12. Concept of high-risk. Maternal and perinatal morbimortality

Concept of *high risk*. Classification of risk levels during pregnancy. Health repercussions of pregnancy and labour for the mother, fetus and newborn, considering reproduction as a physiological process.

#### 13. Obstetric pelvis. Soft pelvis. Fetal head. Pregnancy. Fetal stasis

Pelvic planes and diameters. Types of pelvis. Soft pelvis and fetal head.

#### 14. Onset of labour

Theories on the onset of labour. Onset of labour in primates: electrical activity of the uterus, prostaglandins, oxytocin and pattern of the onset of labour.

**15. Uterine dynamics. Physiology of uterine contraction**

Contractile activity of the uterus. Physiology of uterine contractions. Characteristics of uterine contraction. Elements of uterine dynamics. Methods for the control of uterine dynamics. Changes in uterine dynamics during gestation and labour.

**16. Vertex deliveries (I). Physiology and clinical course**

Transition between the end of pregnancy and onset of labour. Mechanisms that lead to delivery of the fetus and expulsion of the placenta; accompanying clinical phenomena.

**17. Vertex deliveries (II). Care during delivery. Obstetric analgesia and anesthesia**

Basic principals and care requirements during delivery, including obstetric analgesia and anesthesia.

**18. Diagnosis of fetal well-being during labour**

Diagnostic methods to establish the degree of fetal well-being in the uterus.

**19. Puerperium and breast-feeding**

Physiological and clinical aspects of normal puerperium and associated medical care.

**20. Adaptation to extrauterine life**

Special emphasis on respiratory and circulatory function, blood gas transport, bilirubin conjugation, temperature regulation and nutrition. Neonatal resuscitation.

**21. Hemorrhage during the first half of the gestation period**

Abortion and trophoblastic disease.

**22. Ectopic pregnancy**

Analysis of the epidemiological factors, clinical aspects, diagnosis and treatment of extrauterine embryo implantation.

**23. Cardiopathies and anemia during pregnancy. Digestive diseases and gestation**

Principal cardiopathies in pregnant women and their interaction with the pregnancy. Principal forms of anemia associated with pregnancy and appropriate treatment. Study of gastrointestinal and hepatobiliary pathology; effects on pregnancy.

**24. Hypertension during pregnancy**

Epidemiology, classification. Etiopathogeny and clinical manifestations. HELLP syndrome. Diagnosis and control. Therapeutic procedures for hypertension in pregnancy.

**25. Diabetes *mellitus* and other metabolopathies**

Effects of pregnancy on diabetes and of diabetes on pregnancy. Diagnosis and treatment. Diseases of the hypophysis, thyroids and suprarenals associated with pregnancy.

**26. Viral and bacterial infections**

Effects of cytomegalovirus, genital herpes, varicella-zoster, hepatitis B and rubella on gestation. Particular focus on acquired immune deficiency syndrome. Urinary infection during pregnancy and asymptomatic bacteriuria.

**27. Perinatal hemolytic disease**

Pathogeny of Rh isoimmunization during pregnancy and physiopathology of fetal distress. Possibility of perinatal hemolytic disease due to ABO incompatibility.

**28. Hemorrhage during the second half of the gestation period: placenta previa (PP) and premature detachment of the normally positioned placenta (PDNPP)**

Degrees or types. Frequency and predisposition factors. Clinical manifestations. Diagnosis, evolution and treatment of placenta previa.

Frequency and etiology of PDNPP. Clinical manifestations, complications, diagnosis and treatment. Differential diagnosis between PP and PDNPP.

**29. Intrauterine growth retardation**

Factors regulating fetal growth. Determinants of fetal growth. Causes, clinical manifestations, diagnosis and treatment.

**30. Multiple gestation**

Frequency. Types of twin pregnancy. Diagnosis. Complications of twin delivery. Procedures during pregnancy and delivery.

### **31. Podalic, pelvic and breech presentation. Deflected cephalic presentation and transverse presentation**

Methods for diagnosis of a single fetus in breech presentation in a full-term pregnancy; evaluation of the clinical situation to establish the appropriate obstetric procedures. Anomalies in flexion of the fetal head during delivery: deflected cephalic presentations and persistent occiput posterior and transverse positions. Transverse presentation.

### **32. Mechanical dystocia. Fetal-pelvic disproportion. Uterine rupture**

Difficulties during delivery due to the bony or soft walls of the delivery channel, or abnormal presentation of the fetus. Risk of uterine rupture is particularly common in patients with uterine scars from a previous delivery.

### **33. Dynamic dystocia**

Alterations in uterine tone, frequency and intensity of contractions and uterine coordination that complicate the process of a natural delivery.

### **34. Pre-term delivery. Premature rupture of membranes. Chorioamnionitis. Prolapse of the umbilical cord**

Concept of *pre-term delivery*, etiology, pathogeny, clinical manifestations, consequences and treatment. Concept of *premature rupture* of membranes, etiology, diagnosis and treatment. Concept of chorioamnionitis, etiology, diagnosis and treatment. Concept of prolapse of the umbilical cord, etiology, diagnosis, prophylaxis and treatment.

### **35. Fetal distress during delivery. Diagnosis and treatment**

Evaluation of the fetal state and carrying out of obstetric procedures for a pregnant woman during a full-term delivery producing meconium discharge, together with alterations in the fetal heart rate.

### **36. Anomalies during childbirth. Obstetric coagulopathies. Obstetric shock**

Anomalies comprise placental retention, uterine inversion, uterine atonia, retention of placental remains, injuries of the soft birth canal. Possible complications of postpartum hemorrhage are consumption coagulopathies and shock.

### **37. Pathological anatomy of benign tumors of the vulva, vagina, uterus and ovary.**

Non-neoplastic epithelial disorders of the vulva, vulvovaginal tumors and cysts, benign lesions of the cervix. Vulvar and vaginal intraepithelial neoplasia and the role of papillomaviruses. Endometrial hyperplasia. Classification of benign ovarian tumors.

### **38. Clinical aspects and treatment of benign pathology of the vulva, vagina, cervix, lower genital tract infections and sexually transmitted diseases.**

In addition to the study of benign tumors, this section includes infections of the lower genital tract, discharge and sexually transmitted diseases.

### **39. Pelvic inflammatory diseases**

Manifestations of upper genital tract infection in women and its possible consequences.

### **40. Pelvic pain. Premenstrual tension syndrome. Dysmenorrhea. Dyspareunia**

Carry out a classification of pelvic pain and its differential diagnosis. Concept of *premenstrual tension*, etiopathogeny, symptoms and treatment. Concept of *dysmenorrhea*, types, etiopathogeny, symptoms, diagnosis and treatment of primary dysmenorrhea. Etiology and treatment of dyspareunia.

### **41. Endometriosis and adenomyosis**

Significance of the presence of ectopic endometriotic focus in the muscular tissue of the uterus as a histopathological finding associated with hysterectomy.

### **42. Uterine myoma**

Concept, frequency and etiology, pathological anatomy, symptoms, diagnosis. Uterine myomas, sterility and infertility. Expectant approach, surgical and hormonal treatment.

### **43. Benign ovarian tumors**

This includes the study of functional cysts, non-functional or organic cysts, benign solid tumors, endocrine tumors, their clinical manifestations, diagnosis and treatment.

### **44. Genital prolapse. Urinary incontinence**

Types of genital prolapse, etiology, symptoms, diagnosis and treatment. Stress incontinence and urge incontinence. Urinary fistulae.

**45. Normal and pathological puberty**

Control of pubertal development. Concept of *adrenarche*. Precocious puberty and delayed puberty.

**46. Climacterium and menopause**

Endocrinological and clinical phenomena associated with the termination of ovarian function and indications for hormone replacement therapy.

**47. Congenital malformations of the female genital apparatus**

Study of the intact hymen, congenital absence of the vagina, Rokitansky-Küster-Hauser syndrome and congenital uterine malformations; classification, diagnosis and treatment. Introduction of the concept of *gonadal dysgenesis* and study of different types and special clinical forms, diagnosis and treatment.

**48. Intersexual states**

The regulation of sexual differentiation and study of the most important forms; true hermaphroditism, female and male pseudohermaphroditism, diagnosis and therapeutic attitude.

**49. Study of amenorrheas**

Understand hypothalamic, hypophyseal, ovarian and uterine amenorrhea, hyperprolactinemia and establish guidelines for diagnosis.

**50. Dysfunctional uterine hemorrhage**

Highlight the importance of the differential diagnosis with organic hemorrhages and establish guidelines for hormone treatment.

**51. Sterility**

Concept, frequency and etiology. Male, ovarian, tubal-peritoneal, cervical, immunological, uterine. Sterility of unknown origin. Psychosomatic factors. *In vitro* fertilization. Diagnostic guidelines for sterile couples.

**52. Infertility (repeat abortion)**

Concept, frequency and etiology. Evaluation of infertile couples. Standard post-conception procedures.

**53. Androgenism of ovarian origin**

Normal manifestations of physiological androgenemia in women and the individual and ethnic variations. Differences between hirsutism and hypertrichosis. Most frequent cause of hirsutism observed by gynecologists: excess production of androgen by ovaries that have lost their ovulatory function (anovulation) and which is therefore almost always associated with menstrual disorders and sterility, the profile of polycystic ovary syndrome. Diagnostic guidelines, differential diagnosis and treatment according to the requirements of patients who do wish to become pregnant.

**54. Contraception. Natural methods. Chemical-mechanical contraception**

Types of contraceptive methods: mechanism of action, effectiveness, safety, side effects and contraindications. Reasons to interrupt contraception.

**55. Hormonal contraception**

Non-contraceptive benefits of combined oral hormonal contraceptives and medicinal interactions. Indications and contraindications.

**56. Contraception. Intrauterine devices. Occlusion of the fallopian tubes. Vasectomy**

Types of intrauterine devices, mechanism of action, effectiveness, risks and complications. Occlusion of fallopian tubes and required techniques. Vasectomy, technique, failure and side effects.

**57. Role of radiology in gynecological diagnosis**

Hysterosalpingography, computerized axial tomography and nuclear magnetic resonance. Indications and applications in gynecology.

**58. Foundations of oncological treatment**

Current trends and multi-disciplinary view of treatment for female genital cancer and breast cancer, comprising surgery, chemotherapy, radiotherapy and hormone therapy.

**59. Role of radiology in gynecological cancer**

External radiotherapy and brachytherapy. Applications to cancer of the endometrium, cervix, vagina and vulva. Radiotherapy in breast cancer; indications and particular focus on conservative treatment.

**60. Pathological anatomy of cancer of the vulva, vagina and cervix**

Types, classification and its influence in the response to treatment and in prognosis.

### **61. Cancer of the vulva and vagina**

Risk of cancer of the vulva in menopausal women with unspecified vulvar conditions. Value of histological study. Spreading and growth of this type of neoplasia and classification from clinical studies. Conditioning of the therapeutic approach and current forms of treatment. Establishing a prognosis for a patient diagnosed with and treated for vulvar or vaginal cancer.

### **62. Cervical intraepithelial neoplasia. Early diagnosis**

Precancerous lesions of the vulvar, vaginal and cervical epithelia that may coexist in the same patient and may develop into invasive neoplasia in a high proportion of cases if untreated. Importance of diagnosis in these precursor stages of cancer.

### **63. Cervical cancer**

Epidemiology, natural history, propagation pathways, symptoms, diagnosis, staging study and classification by stages, prognosis and treatment. Results.

### **64. Pathological anatomy of malignant tumors of the uterine body and ovaries**

Types, classification and influence on the response to treatment and prognosis.

### **65. Endometrial cancer**

Epidemiology, precursor lesions, propagation pathways, symptoms, diagnosis, classification by stages, prognosis and treatment. Results.

### **66. Uterine sarcomas. Fallopian tube cancer**

Concept of *uterine sarcoma*, frequency, classification, clinical stages, diagnosis, prognosis and treatment. Epidemiological factors in fallopian tube cancer, clinical aspects, diagnosis and treatment.

### **67. Ovarian cancer**

Epidemiology, clinical manifestations, diagnosis and importance of ovarian cancer in the differential diagnosis of abdominal tumors. Value of preliminary biopsy in the determination of appropriate treatment. Role of the clinical oncologist in the treatment of ovarian cancer.

### **68. Benign breast disease**

Diagnostic methods used in breast pathology. Classification of benign breast tumors. Concept, clinical characteristics and treatment.

### **69. Breast cancer**

Importance of breast cancer due to its high incidence in the female population and as a cause of mortality. Breast cancer as a systemic disease. Epidemiology and predisposition factors in breast cancer. Natural history of this neoplasia. Identification of potential high-risk individuals requiring special attention. Diagnosis, prognosis and treatment.

## **Seminars**

### **A) Obstetrics**

1. Hemorrhage during the first half of the gestation period.
2. Hypertension and pregnancy.
3. Diabetes and pregnancy.
4. Fever during pregnancy and postpartum fever.
5. Metrorrhagia during the second half of the gestation period.
6. Fetal death.
7. Intrauterine growth retardation.
8. Multiple gestation.
9. Risk of premature birth with and without rupture of membranes.
10. Fetal distress during labour: dynamic and mechanical dystocia.
11. Anomalies during labour.
12. Forceps, spatulas, vacuum and Caesarean section.

## **B) Gynecology**

1. Gynecological examination and complementary examinations.
2. Genital discharge.
3. Amenorrhea: primary and secondary.
4. Congenital and intersex malformations.
5. Pelvic pain.
6. Urinary incontinence.
7. Primary sterility.
8. Repeat abortion.
9. Metrorrhagia in non-menopausal women.
10. Metrorrhagia in menopausal women.
11. Abdominal tumors.
12. Breast tumors.

## **LEARNING RESOURCES AND TEACHING METHODOLOGIES**

- Theory classes.
- Practical seminars on clinical cases: these will be used to examine various areas of the teaching programme through teacher-led discussion of various clinical cases.
- Clinical experience. This will take place in Hospital Clínic, Hospital de Sant Joan de Déu, Hospital del Sagrat Cor, Hospital Creu Roja d'Hospitalet, Hospital Mútua de Terrassa and Hospital General de Granollers.

## **LEARNING REQUIREMENTS**

Students wishing to follow the course must have previously acquired the knowledge corresponding to the different subject areas covered, in particular the anatomy of the female genital apparatus, the structure and function of the reproductive and endocrine systems, pharmacology, radiology and physical medicine (radiotherapy), endocrine and breast diseases and clinical oncology.