

Female sterility: basic examination stages, new approaches

The sterility is one of the important and difficult problems, both of medical and psychological point of view [1]. The sterility as a medical diagnosis is present if a pair of the child bearing age doesn't use any contraception when having a regular sexual life during one year without becoming pregnant.

There are female and male sterility. The female sterility can be particularly divided into absolute, primary and secondary one. *The absolute* sterility is present if the female genitals have no uterus or ovaries and if there are other bad female genitals development anomalies incompatible with becoming pregnant. The «*primary sterility*» diagnosis can be made if the woman was pregnant never before and if she had her regular sexual life during one year without using any contraception and without becoming pregnant. The “*secondary sterility*” – this is the case when the women can not become pregnant, but they had pregnancies before, even if it was only one pregnancy, independent on its result.

There are lots of reasons why the fertility of the women can be abnormal; the main of them are hormonal disorders, obstruction of the uterus pipes, various gynecologic diseases, immunologic factors etc.

Because of many factors influencing the woman's child bearing function it is necessary to apply a complex approach for examination and treatment, including the standardized diagnostic techniques, the criteria of selecting and choosing a method of therapy; as result all these measures enhance considerable the efficiency of pathology detection and of the chosen treatment.

The approach to examine and to treat the patients having sterility is very different at various clinics in dependence of the applied methods of examination (hormonal and infectious screening, ultrasonic scanning (US), endoscopy methods). In many clinics having deal with examination of sterile married couples, the volume of the examination being done is not equal. The criteria used to diagnose some forms of sterility are not sufficiently determined, the clinical data have been interpreted differently, various laboratory parameters have not been unified yet.

It is expedient to begin the examination taking conversation with the both spouses as the reproductive ability of men is reduced in 30 - 40 % of sterile marriages. It is also necessary to include in the schedule of examination sexopathologist's, neuropathologist's, therapist's and lawyer's consultations.

In cases of female sterility the algorithm of examination has to include **the analysis of clinic-anamnestic parameters**, first of all. In this connection, on the primary before-clinic- stage, alongside with the used gynecologists questionnaires – questionnaires, the using of “Sensitiv-Imago” hardware and software complex can be a special interest [2, 3, 4]; the function of the complex is based on the bio-resonance principle and allows to carry out with high level- computer technologies the analysis of such important anamnestic moments as duration of sterility, the connection of the

destroyed reproductive function with any factors, the character of menstrual functions, changing of the body weight during a short period of time, discharges from mammary glands, the psychological status of the patient.

When carrying out the primary examination with using the “Sensitiv-Imago ” hardware and software complex a special attention is being paid to diseases the patient has had before, to operative interventions as gynecologic operations of any kind the woman had in the past (ovary cyst, extrauterine pregnancy, surgical treatment of the neck of uterus, the abortion, the complicated childbirth course because they can be the reason of sterility. When carrying out the hardware and software examination with the “Sensitiv-Imago ” complex the detection of a probably pathology of uterus, of uterine tubes, of ovaries is possible and also the detection of the risk, that the organs mentioned above would have developing diseases.

At the stage of computer analysis of test results and of data processing it is also possible to detect the diseases the woman can have, which can be transmitted in the sexual way (trichomoniasis, clamidiosis, ureaplasmosis, gonorrhea, mycoplasma viral infection etc.) as their role in the development of an acquired uterine tubes pathology is known and this is especially actual because of the high level of contamination by above mentioned causative agents [5,7,9,10].

In spite of the fact that the results of anamnestic data analysis and of computer testing conducted with “Sensitiv-Imago ” hardware and software complex are rough and demand more exact, clinical methods of inspection, the practice shows, that in the most cases (about 80 %) the preliminary conclusions are corresponding to the diagnoses made at the following clinical stages.

At the clinical stage the valuation of the fertility of a woman includes the **examination** of the patient first of all. The body-build type, the weight of body and the stature relation must be estimated, the secondary sexual attributes (the degree and the character of the hair distribution and the mammary gland development) must be evaluated. The hair distribution has to be estimated using the Ferryman-Halway scale enabling the nine zones to be examined. The exceeding of the summarized parameter when comparing with the norm established for women of the given ethnic group testifies a possible connection with the hyperandrogyny of epinephros or the ovary genesis and this demands a hormonal examination.

A detailed mammary glands examination and the appearance of the nipples area allow to define the degree of this organ’s development after Tanner. The character of the nipple discharges helps to distinguish the endocrine disorders from an organic mammary glands pathology. Thus, a standard gynecologic examination can give more information and promotes a correct verification of the diagnosis.

When examining the patient for the first time the following methods must be used obligatory: **colposcopy or microcolposcopy** which allow to find the signs of

colpitis, cervicitis, endocervicitis and servical erosion which can be the reason of the sterility and are attributes of a chronic infection of genitals.

To estimate the hormonal activity of ovaries and the presence of ovulation the **functional diagnostics tests** can be used. The basal temperature schedule is one of the most accessible methods to indicate the happened ovulation. The attributes of the ovulation cycle are the following ones: the biphasic character of temperature, the temperature "beginning to fall" with 0,2-0,3 °C on the day of ovulation and the temperature rising during the lutein phase of the cycle in comparison with follicle one with 0,6-0,6 °C when the phase II duration is not less than 12-14 days. If there is no ovulation the basal temperature is a monophasic one. The ovulation is also confirmed by the level of progesterone determined on the 20th - 24-th day of the cycle. For ovulation diagnostics can be applied the ultrasonic scanning when the ovary is being repeatedly scanned to supervise the growth of the follicle and its rupture, and also the biopsy endometrium with its secretory changes.

The following stage, if it is indicated, are the **laboratory researches** to evaluate the hormonal status. It is not recommended to take the blood for a hormonal test after a gynecologic examination and the examination of mammary glands and also at early morning time when the awakening can cause the changing of the results, especially of the prolactin. If the enhanced parameters have been found it is necessary to repeat the valuation of the hormones level. The cortex function can be evaluated by the level of dehydroisoandrosterone sulfate excretion. If the menstruation rhythm is regular, it is justified to define the level of prolactin, of testosterone, of cortisol and the level of thyroid hormones in the blood plasma during the follicle phase on the 5th-7th day of the menstrual cycle. In the phase II, on the 20th - 22nd day it is recommended to define the progesterone to estimate the full value of the ovulation and the functions of the yellow body. In case of the oligomenorrhea and of the amenorrhea it is obligatory to define the level of all hormones:

FSH, LH, prolactin, estradiol, testosterone, DEA-C, TSH, T3, T4. The experiences stored in the sterility clinic, testify that the single definition of the basal level of hormones in the blood is not always informative. The hormonal tests allow to specify the state of various parts of the reproductive system or to find out their reserve abilities. To these tests belong the progesterone test, the test with estrogens, with clostilbegit, with gonadoliberin, with dexamethasone etc.

In case of the inflammatory diseases of genitals it is necessary to take into account, that the activators with different biological properties (chlamydia, mycoplasmas, viruses) can cause similar processes of clinical displays in sexual system: serosuppurative discharges from the cervical channel, the hyperemia around of an external fauces (endocervix), erosion, cervical pseudo-erosion and urethritis. One uses various methods of laboratory diagnostics of activators, including the method of microscopy of brush cytology of the cervical channel after Romanovsky's stain; this method helps to detect, for example, the chlamydia (40 % of cases). The immunoenzymatic and fluorescence methods of indication have been used. The

immunoenzymatic method of analysis using the monoclonal antibodies is a perspective one. In the case of chlamydia the most informative method is the method of activator's isolation on cell culture [6]. The diagnostics of the ureaplasma infections is a difficult task because they often are associated with various microbial flora. For their indication is normally used the method of cultivation on liquid and firm media.

The virus infections belong to the most widespread infections of the reproductive system. The clinical presentation of virus infections has a characteristic sign: the presence of vesicles on the background of edematous hyperemia of the vulva, the expressed itch. The diagnostics is based on the detection of the antibody titer of simple herpes virus in blood serum or in the discharges from the cervical channel, from vagina, in the aspirate from the cavity of uterus. For making the expressdiagnostics the method of antibodies fluorescence and the immunoperoxidase method can be used.

When taking into account the high rate of various associations of microbial flora [8], it is necessary to carry out the **bacterioscopic and bacteriological examination** to detect the nonspecific activators of chronic inflammatory processes of genitals. These researches should be done after a provocation (physiological – the next menstruation; medicamentous - pyrogenal, gonovaccine).

The patients having heavy anatomic changes of uterine tubes must be examined on tuberculosis if there is the suspicion that the woman has intrauterine synechia.

The radiological examination of the small pelvis using the roentgenopaque water-soluble substance is the method to evaluate the state of the uterus and of the uterine tubes. It allows to detect the developmental uterus defects, hyperplastic processes, endometriosis, submucous myoma, internal endometriosis, intrauterine synechia, uterine tubes obstruction with the exact localization, isthmic cervical defect and the commissure process in the small pelvis. However it is necessary to know, that at 8 - 30 % of cases the "false-positive" and "false-negative" results are possible. In the period of examination the patient should be protected from pregnancy when having her menstrual cycle being used for the endoscopy (ICF).

To specify the diagnosis the endoscopy methods of diagnostics are used, too: laparoscopy and hysteroscopy. These methods are very good for using at the clinic of female sterility because they allow not only to specify the pathology of uterine and tubes but also to do a surgical correction. Thus, when considering the problem of finding the reasons of female sterility it is necessary to emphasize the importance and the continuity of all diagnostic stages; it is also necessary to use the modern methods of laboratory and apparatus diagnostics, including the before clinic methods based on the achievements of computer technologies, enabling to do the screening examination of the whole organism for lots of patients with minimal time input, and the results can be used as basic ones when finding out the tactics for the next-stage researches.

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