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11 DIAGNOSIS OF PREGNANCY

1 Introduction

Diagnosis of pregnancy is an important component of sexual and reproductive health (SRH)/family planning and other reproductive health services. SRH/family planning clinics can offer pregnancy diagnosis services for women who:

- Have planned a pregnancy and are hoping to be pregnant;
- Have had unprotected intercourse and suspect they might be pregnant;
- Want to start certain methods of contraception (e.g., IUD) and need to exclude the possibility that they might be pregnant; *or*
- May have experienced contraceptive failure.

A broad range of techniques are available for the diagnosis of pregnancy. Different methods may be used in particular settings according to their affordability and feasibility: for example, many areas do not have access to biochemical pregnancy tests. Although pregnancy may be diagnosed by clinical (non-laboratory) means, this technique begins to be reliable only after some 8-10 weeks of amenorrhoea.

In the event of pregnancy, determination of the gestational age is important to give the woman an estimated date of delivery. This determination is also useful in the diagnosis of certain pregnancy complications (e.g., ectopic pregnancy or threatened abortion). When a client is considering an abortion, information about gestational age helps the woman to make a decision, and where legal, is essential for selection of the appropriate technique.

2 Clinical (non-laboratory) diagnosis

Diagnosis of pregnancy by clinical (non-laboratory) means relies on the detection, through a careful medical history and physical examination, of the signs and symptoms associated with pregnancy. The most important symptom is amenorrhoea which, when it is accompanied by other symptoms, is highly suggestive of pregnancy. Pelvic examination is useful in the diagnosis of pregnancy after 6 weeks' gestation.

3 Symptoms and signs of pregnancy

3.1 Symptoms

Symptoms of pregnancy include:

- Absent menses (amenorrhoea).
- Nausea (with or without vomiting) and changes in appetite.
- Persistent fatigue.
- Breast tenderness and breast enlargement.
- Increased frequency of urination.
- Perception of fetal movements (late symptom, at 16-20 weeks' gestation).

3.2 Signs

Signs of pregnancy include:

- Uterine softness, roundness and enlargement begins to be noticeable at 6 weeks' gestation.
- Hegar's sign becomes manifest at about 6 weeks' gestation. The isthmus between the cervix and the body of the uterus is felt to be soft and compressible on bimanual pelvic examination.
- Uterine pulsations may be a helpful sign of pregnancy at less than 6 weeks' gestation.
- The enlarged uterus is palpable above the pubic symphysis after 12 weeks' gestation.
- Fetal heart tones are detectable with a stethoscope at 18-20 weeks' gestation.
- Fetal movements can be perceived by an examiner at 18-20 weeks' gestation.

4 Laboratory diagnosis

All biochemical laboratory tests involve antibodies that detect the presence of human chorionic gonadotrophin (HCG) in a woman's urine or blood sample. HCG is a protein produced by the placenta or its precursor and is closely related to luteinizing hormone (LH), follicle-stimulating hormone (FSH) and thyrotrophin. Each of these hormones has two subunits, alpha and beta. The alpha subunits are almost identical, so only

a test that selectively identifies the beta subunit of HCG is specific for HCG. HCG can be detected as early as 7-9 days after ovulation. Pregnancy tests can be divided into 2 groups:

- Agglutination inhibition slide tests; and
- Immunometric tests and radioimmunoassays.

Immunometric tests and radioimmunoassays are more sensitive and specific than agglutination inhibition tests, but are more expensive.

4.1 Agglutination inhibition slide tests

These tests are inexpensive, easy to use and reliably detect pregnancy about 6 weeks after the last menstrual period or 2 weeks after a missed period. As women normally request pregnancy testing only after missing a period, agglutination tests are sufficient for most cases. Antibodies to HCG bind with HCG in the woman's urine sample to produce a positive pregnancy test. Because these antibodies are not specific to the beta subunit of HCG, there is a possibility of cross-reaction with LH, FSH or thyrotrophin. To prevent false-positive results, the sensitivity of these tests (about 2,000 mIU/ml HCG) is set such that high concentrations of HCG are required for a positive result, thereby lessening the chance of cross-reactions. These tests are appropriate for confirmation of pregnancy between 6 and 16 weeks of amenorrhoea. False-negative tests can occur with low concentrations of HCG, as may be found in early pregnancy, pregnancy after 16-20 weeks' gestation, ectopic pregnancy and impending abortion.

4.2 Immunometric tests and radioimmunoassays

These tests reliably detect low concentrations of HCG and are therefore appropriate for detection of early pregnancies, including ectopic pregnancy. These tests are specific for the beta subunit of HCG and so will not cross-react with other hormones.

Immunometric tests can detect HCG concentrations as low as 5-50 mIU/ml in a woman's urine sample. These tests are now available in kit form, for home and clinic use. Test results are positive for 98% of women 3-4 days before the expected menstrual period.

Radioimmunoassays use radioisotopes to detect HCG in serum, so are generally carried out in hospital laboratories. They give accurate results with 5 mIU/ml HCG within 7 days of fertilization.

5 How to be reasonably sure that the woman is not pregnant

Service providers need to exclude the possibility of pregnancy before providing methods of contraception, particularly hormonal contraceptives and IUDs.

To be reasonably sure that a woman is not pregnant, she should have no symptoms and no signs of pregnancy. In addition, the woman should:

- Not have had intercourse since her last normal menstrual period;
- Have been correctly and consistently using a reliable method of contraception;
- Be within the first 7 days of the start of the last menstrual period;
- Be within 4 weeks post-partum (for non-lactating women);
- Be fully or nearly fully breast feeding, amenorrhoeic and less than 6 months post-partum; or
- Be within the first 7 days post-abortion.

A false-negative diagnosis of pregnancy is always possible, although a false-negative diagnosis is much less likely with biochemical tests than with history and physical examination alone.

6 Counselling after diagnosis of pregnancy

Offer counselling about her options to any client with a positive pregnancy diagnosis. In particular, give a woman who is unsure about continuing the pregnancy whatever support and information that she needs to make an informed decision. Refer the client to other service providers as appropriate. If the client plans to continue the pregnancy, counsel her about the importance of prenatal care, and on how and where to obtain it.

