Chapter A. General Practice

CQ001: How should uncomplicated healthy pregnant women be cared for prenatally?

Answer

1 Provide antenatal care regularly and try to detect early premature labor, gestational diabetes, pregnancy-induced hypertension, low-lying placenta and placenta previa, fetal abnormalities (fetal growth restriction, abnormal position, oligohydramnios, and polyhydramnios), and placental insufficiency. (A)
2 Measure maternal weight, fundal height of the uterus, and blood pressure; semiquantify glucose and protein concentrations in the urine; and assess fetal heartbeat and maternal edema (change in maternal weight) at each antenatal visit. (B)
3 Provide antenatal care according to the following schedule: three times until the end of 11 weeks of gestation (GW); every 4 weeks between 12 GW and the end of 23 GW; every 2 weeks between 24 GW and the end of 35 GW; and once a week thereafter. (C)
4 Regularly assess the fetal well-being at ≥41 GW. (B)
5 Consider the possibility that midwife-managed care for healthy women, together with existing services (see CQ414), may be clinically effective and may enhance the pregnant woman's satisfaction. (C)

CQ002: What information should be obtained from women during an early stage of pregnancy?

Answer

1 Ask women to complete the questionnaire form (see sample in Discussion). (B)
2 Measure bodyweight and blood pressure and semiquantify glucose and protein concentrations in the urine. (B)
3 Screen for cancer of the uterine cervix using a cytological examination. (C)

CQ003: What blood tests should be performed during the first trimester?

Answer

1 The following blood tests are recommended: blood typing, including ABO and Rh (A), atypical antibody against erythrocyte (indirect Coombs test) (A), complete blood count (A), HBs antigen (A), HCV antibody (A), rubella antibody using HI (A), screening tests for syphilis (A), HTLV-1 antibody (A, before the end of the second trimester), screening test for HIV (A), glucose concentration (B), and toxoplasma antibody (C).

CQ004-1: How should pregnant women with an increased risk of deep vein thrombosis (DVT) and pulmonary thromboembolism (PTE) be screened and managed during pregnancy?

Answer

1 Give prophylactic anticoagulation throughout pregnancy for Group 1 women shown in Table 104-1. (B)
2 Consider prophylactic anticoagulation throughout pregnancy or transiently for Group 2 women shown in Table 104-1. (B)
3 Consider prophylactic anticoagulation throughout pregnancy or transiently for Group 3 women shown in Table 104-1. (C)
4 Give prophylactic anticoagulation after surgical procedures performed during pregnancy for Group 2 women shown in Table 104-1. (B)
5 Explain the risk of DVT/PTE and recommend habits including the elevation of lower extremities, flexion and extension of knee and ankle joints, and the use of elastic stockings for women with the risk factors shown in Table 1. (C)
6 Use unfractionated heparin for anticoagulation in pregnant women (for problems arising from Japanese health insurance coverage, low-molecular-weight heparin can be used after surgical procedures, even in pregnant women). (C)
7 Obtain written informed consent when low-molecular-weight heparin is used in pregnant women who have not undergone a surgical procedure. (B)
8 Quit anticoagulation with unfractionated heparin at least 3–6 h prior to the commencement of labor or scheduled surgical procedures. (B)
9 Perform the following actions when using unfractionated or low-molecular-weight heparin to minimize adverse events:
   (i) Periodically monitor and assess the prothrombin time (PT), the activated partial thromboplastin time (APTT), and liver function. (B)
   (ii) Pay attention to changes in the platelet count, keeping in mind that heparin use can induce serious adverse effects including 'heparin-induced thrombocytopenia.' (B)
   (iii) Consider the appropriate time interval after the 'start or end of heparinization' for the insertion or removal of an epidural catheter. Refer to the

'Discussion of this CQ&A' for the appropriate time interval. (B)

10 Promptly switch the anticoagulation drug to unfractionated heparin upon confirmation of pregnancy in women who are being treated with warfarin. (A)

CQ004-2: How should post-partum women with an increased risk of deep vein thrombosis (DVT) and pulmonary thromboembolism (PTE) be screened and managed?

Answer

1 Recommend the early initiation of usual daily activities. (C)
2 Give prophylactic anticoagulation to Group 1 post-partum women shown in Table 104-2. (B)
3 Give prophylactic anticoagulation or intermittent pulse-pressure treatments to Group 2 post-partum women shown in Table 104-2. (B)
4 Give prophylactic anticoagulation or intermittent pulse-pressure treatments to Group 3 post-partum women shown in Table 104-2. (C)
5 Explain the risk of DVT/PTE and recommend habits including the elevation of lower extremities, flexion and extension of knee and ankle joints, and the use of elastic stockings to women with the risk factors shown in Table 104-2. (C)
6 Initiate treatment with unfractionated heparin at a dose of 5000 units twice daily (s.c.) 6–12 h after parturition (the use of unfractionated heparin can be initiated immediately after birth if hemostasis is confirmed. Refer to the 'Discussion of this CQ&A' for the use of low-molecular-weight heparin). (B)
7 Prepare for a 'time period during which both heparin and warfarin are administered' when switching from heparin to warfarin. (B)
8 Use intermittent pulse-pressure treatment as follows:
  (i) Rule out DVT prenatally based on symptoms and palpation of both the legs. (C)
  (ii) Initiate intermittent pulse-pressure treatment during surgical procedures (cesarean section and other surgeries performed after parturition). (C)
  (iii) Continue the intermittent pulse-pressure treatment until post-partum women are able to resume walking. (B)
  (iv) Discontinuation of the intermittent pulse-pressure treatment is feasible after post-partum women who are continuing to receive heparin are able to resume walking. (B)
  (v) In women with vaginal delivery, apply the intermittent pulse-pressure treatment only during the period of time when walking is difficult. (B)
9 Avoid placing the patient in a 'lithotomy' position when performing a cesarean section. (C)
10 Warfarin and heparin can be used in lactating women. (A)
11 Refer to CQ004-1 for blood tests that should be performed during anticoagulation and for points of caution during the removal of an epidural catheter. (B)

CQ005-1: How should patients with hyperglycemic disorders during pregnancy be screened?

Answer

1 Screen all pregnant women for 'gestational diabetes mellitus (GDM)' and 'overt diabetes in pregnancy'. (B)
2 Screen using the following stepwise method: (B)
  (i) Measure random blood glucose level at an early stage of pregnancy (each hospital should determine its own cut-off value). Check items ①–③ in Answer 4 before planning a 75-g oral glucose tolerance test (OGTT) in women with a random blood glucose level of ≥200 mg/dL.
  (ii) Give the pregnant woman a 50-g glucose challenge test (GCT; cut-off value ≥140 mg/dL) or measure the random blood glucose level a second time (cut-off value ≥100 mg/dL) between 24 and 28 GW in women not diagnosed as having 'GDM' or 'overt diabetes in pregnancy'.
3 Give a 75-g OGTT to all women with a positive screening test result except women diagnosed as having 'overt diabetes in pregnancy'. Diagnose the pregnant woman as having 'GDM' if one or more threshold values of a 75-g OGTT are fulfilled. Check items ①–③ in Answer 4 in women with a 2-h plasma glucose (PG) ≥ 200 mg/dL. (A)
  Threshold values for 75-g OGTT
  ① Fasting plasma glucose (FPG) ≥ 92 mg/dL (5.1 mmol/L)
  ② 1-h PG ≥180 mg/dL (10.0 mmol/L)
  ③ 2-h PG ≥153 mg/dL (8.5 mmol/L)
4. Diagnose the pregnant woman as having 'overt diabetes in pregnancy' if any of the following three criteria are fulfilled: (A)
  ① FPG ≥ 126 mg/dL
  ② HbA1c ≥ 6.5%, expressed as National Glycohemoglobin Standardization Program (NGSP)

value (HbA1c ≥ 6.1% according to Japan Diabetes Society [JDS])*
③ Definite diabetic retinopathy
④ Random blood glucose ≥200 mg/dL with any of ①–③, or 2-h PG ≥ 200 mg/dL with any of ①–③
*The HbA1c value (%) according to the NGSP criteria corresponds to the same value plus 0.4 according to the JDS criteria.

5 Give a 75-g OGTT to all women with 'GDM' at 6–12 weeks post-partum. Assess the degree of glucose intolerance once again in all post-partum women diagnosed as having 'overt diabetes in pregnancy'. (C)

CQ005-2: How should women with gestational diabetes mellitus (GDM), overt diabetes in pregnancy, or diabetes mellitus be treated?

Answer

1 First, instruct the patient with regard to diet/exercise therapy; initiate insulin treatment in cases with uncontrolled blood glucose levels. (B)
2 Control the blood glucose levels to a fasting morning level ≤95 mg/dL, a pre-meal level ≤100 mg/dL, and a 2-h post-meal level ≤120 mg/dL. (C)
3 Assess fetal well-being using a non-stress test (NST) and/or the biophysical profile score (BPS) at ≥32 weeks of gestation at an adequate interval. Recommend hospital admission if indicated. (C)
4 In women at ≥37 weeks of gestation, treat with either of the following two modalities: (B)
(i) Active management with induction of labor, taking cervical maturation into account.
(ii) Waiting for spontaneous labor onset.
5 Determine the timing and mode of delivery individually for each case with uncontrolled blood glucose levels, exacerbated complications derived from glucose intolerance, and/or presumed macrosomia. (B)
6 Be cautious of shoulder dystocia in cases with prolonged labor, augmentation of labor, and/or vacuum delivery. (C)
7 Monitor intrapartum fetal heart rate (FHR) patterns continuously in women with diabetes mellitus. (B)
8 Maintain a blood glucose level between 70 and 120 mg/dL during parturition. (C)
9 Be cautious of hypoglycemia and monitor blood glucose levels with changing doses of insulin during parturition, as insulin demand decreases abruptly after delivery. (B)
10 Be cautious of respiratory distress syndrome in neonates born by elective cesarean section in women with a gestational term of <39 weeks, uncontrolled blood glucose levels, or an unknown due date. (C)
11 When asked, explain that the necessary caloric intake is greater for lactating women than for non-pregnant women. (B)

CQ006: How should patients with thyroid dysfunction during pregnancy be screened?

Answer

1 Determine the TSH, free T3, and free T4 levels in the blood of women with suspicious clinical signs and/or a medical history of thyroid dysfunction. (B)
2 Try to normalize the thyroid function of patients with thyroid dysfunction. Consult appropriate specialists or other appropriate experts if any difficulty is encountered while treating the patient. (B)
3 When asked, explain that the usual doses of antithyroid drugs can be used by lactating women. (A)

CQ007: How should women visiting a clinic and complaining of decreased fetal movements be dealt with?

Answer

1 Assess the fetal well-being in an appropriate manner, such as an NST. (B)
2 Tell the patient, 'Some investigators have suggested that decreased fetal movements are associated with fetal jeopardy.' (C)

CQ008-1: How should women with an atypical antibody against red blood cells be treated? (see CQ008-2 for women with ant-Rh [D] antibody)

Answer

1 Identify the antibody when a screening test, such as the indirect Coombs test, suggests the presence of an atypical antibody against red blood cells. (B)
2 Assess the titer of the antibody if the antibody belongs to an immunoglobulin (Ig)G that may cause hemolysis in the fetus (see Table 1). (B)
3 Monitor the fetal well-being, paying special attention to anemia and hydrops, in women with an elevated titer of an IgG antibody that may cause hemolysis in the fetus. (B)
4 Be prepared to administer un-crossmatched packed red blood cells compatible with an ABO blood type if the pregnant woman develops unexpected massive bleeding. (B)

CQ008-2: How should pregnant women with a blood type of negative Rh (D) be treated?

Answer

1 Treat women without anti-Rh (D) antibody as follows:
   (i) Assess the anti-Rh (D) antibody titer at least twice around 28 weeks and peripartum. (B)
   (ii) Administer anti-D immunoglobulin within 72 h after the delivery of an Rh (D)-positive infant. (A)
   (iii) Administer anti-D immunoglobulin to women around 28 weeks for the prevention of Rh(D) alloimmunization, after obtaining informed consent. (B)
   (iv) Administer anti-D immunoglobulin to women with the following characteristics to prevent Rh(D) alloimmunization: (B)
      • Termination of pregnancy with a viable embryo at ≥7 weeks, including miscarriage, induced abortion, and ectopic pregnancy.
      • After invasive procedures, such as amniocentesis and external cephalic version of breech.
      • A traumatic hit to the abdomen.
2 In women with anti-Rh (D) antibody, measure the anti-Rh (D) antibody titer every 2 weeks during the latter half of pregnancy. (B)
3 In patients who show a significant increase in the anti-Rh (D) antibody titer, assess fetal well-being with respect to anemia and hydrops fetalis. (A)

CQ009: How should the expected date of confinement (EDC) be determined?

Answer

1 Determine the EDC based on the last menstrual period (LMP) in principle, but use the date of ovulation or fertilization if available. (A)
2 Use the EDC based on the crown–rump length (CRL) in cases with a CRL of 14–41 mm if the difference in the EDC is ≥7 days from the EDC based on the LMP. (B)
3 Use the EDC based on the biparietal diameter (BPD) and the femur length (FL) in cases with estimated gestational weeks of 12–19 and/or a CRL of >50 mm if the difference in the EDC is ≥10 days from the EDC based on the LMP. (C)
4 Estimate the EDC according to Answer 3, with careful consideration of fetal growth restriction and post-term pregnancy, after taking possible deviations into account in cases with estimated gestational weeks of ≥20. (C)
5 Determine the EDC based on findings of the early neonate if no relevant information is available prenatally. (C)

CQ010: What guidance regarding maternal body composition and weight gain during pregnancy should be provided?

Answer

1 Provide the following information when asked about the association between maternal body composition and pregnancy outcome: (C)
   (i) Lean women (BMI < 18.5 before pregnancy) are at an increased risk for preterm labor, preterm delivery, and low birthweight newborns.
   (ii) Obese women (BMI ≥ 25 before pregnancy) are at an increased risk for pregnancy-induced hypertension, gestational diabetes mellitus, stillbirth, fetal macrosomia, and fetal neural tube defects.
2 Provide the following information when asked about weight gain during pregnancy: (B)
   (i) Japanese women of normal body composition (18.5 ≤ BMI < 25) require a weight gain of 11 kg as of the 40th week of gestation to have a singleton newborn weighing 3 kg, according to the 'Dietary Reference Intakes for Japanese', published by the Ministry of Health, Labour, and Welfare, Japan (2010). However, considerable individual differences exist.
   (ii) Maternal weight gain during pregnancy is correlated with the birthweight of the newborn. However, this correlation becomes weaker as the pre-pregnancy maternal BMI increases. In cases of overweight women, the pre-pregnancy BMI, rather than the weight gain during pregnancy, tends to affect the birthweight of the newborns more strongly.
3 Consider the following items when providing nutritional advice:
   (i) Recommend a balanced intake of nutrients. (A)
   (ii) Use the pre-pregnancy BMI. (B)
   (iii) Note that maternal weight gain is one of the parameters for assessing the maternal nutritional condition, and several different guidelines for maternal weight gain during pregnancy exist in Japan. (B)
   (iv) Moderate nutritional guidance for pregnant women is preferred because high-quality evidence is not available. (C)

Chapter B. Consultation

CQ101: Which vaccines are safe for pregnant and lactating women?

Answer

1 Explain as follows, when asked. (B)
   (i) Viable vaccines are contraindicated, in principle, for pregnant women.
   (ii) Non-viable vaccines can be given to pregnant women.
   (iii) Both viable and non-viable vaccines can be given to lactating women.

CQ102: What considerations are necessary regarding the administration of vaccines against influenza and antiviral drugs to pregnant women?

Answer

1 Administer vaccines after explaining that the benefit of vaccination outweighs the risk derived from infection with influenza when women want to be vaccinated. (B)
2 When asked, tell the patient that 'the benefit outweighs the risk of using antiviral drugs for the treatment of influenza in pregnant and lactating women.' (B)
3 When asked, tell the patient that 'the benefit may outweigh the risk of using antiviral drugs for the prophylaxis of influenza in pregnant and lactating women after they have come in close contact with an infected person.' (C)

CQ103: How should women anxious about the adverse effects of radiation exposure during pregnancy be treated?

Answer

1 Before counseling, determine the dose of the exposure using Table 1 and the stage of pregnancy (weeks of gestation) when the exposure occurred using the last menstrual period, measurement of the conceptus by ultrasonography, or the date of a positive pregnancy test result. (A)
2 Explain that the risk of a fetal anomaly does not increase in cases with exposure within 10 days after conception. (B)
3 Explain that an embryo at stages ranging from 10 days after conception until 10 weeks of gestation is vulnerable but does not have an increased risk of malformation at doses of <50 mGy. (B)
4 Explain that the central nervous system of a fetus at 10–27 weeks of gestation may be affected unfavorably at doses of ≥100 mGy. (B)
5 Explain that a dose of 10 mGy is associated with a subtle, but negligible, increase in the risk of childhood cancer. (C)

CQ104-1: How should women who ask questions regarding the effects of a drug on the fetus be answered?

Answer

1 First, determine the date on which the drug was taken and the corresponding gestational week. Use the last menstrual period, the date of a positive pregnancy test (urinary hCG level), and an ultrasound measurement to estimate the gestational week accurately. (A)
2 Refer to the general incidence (3–5%) of malformed infants recognizable at birth as a comparison. (B)
3 Refer to the benefits of the drug as well as the possible adverse effects of the drug on the fetuses. (B)
4 Refer to Tables 1 and 2, CQ104-2, CQ104-3, CQ104-4, and a textbook, such as *Drugs in Pregnancy and Lactation* by Briggs *et al.* (Lippincott Williams and Wilkins). (B)
5 Inform the woman of the service provided by the Japan National Center for Child Health and Development or the Toranomon Hospital. (B)

CQ104-2: Which drugs with a package insert suggesting a contraindication for administration to pregnant women are actually necessary or recommended under specific situations?

Answer

1 The drugs listed in Table 1 are necessary or recommended for use in specific situations, even in pregnant women. (B)

CQ104-3: Which drugs with a package insert suggesting a contraindication for administration to pregnant women are actually considered not to increase the risk to fetuses significantly when the fetuses are exposed to the drug incidentally during early development?

Answer

1 The drugs listed in Table 1 have been judged not to increase the risk to fetuses significantly even when the fetuses are exposed to the drug incidentally during early development. (B)
2 Quit the use of the drugs listed in Table 1, if possible. (B)

3 When the use of a drug listed in Table 1 is considered to be mandatory, continue to use the drug after obtaining informed consent regarding the risk to the fetus. Use an alternative drug that is safer for the fetus if such a drug is available. (B)
4 Explain the risk to the fetus regarding the incidental use of drugs not listed in Table 1, but for which the package insert suggests a contraindication for administration to pregnant women, on an individual basis. (B)

CQ104-4: Which drugs with a package insert indicating 'unproved safety for pregnant women' require caution with regard to possible adverse effects to the fetus?

Answer

1 Be cautious of the possible risk to the fetus when using the drugs listed in Table 1. (B)

CQ104-5: How should one respond when asked about the effects of a drug during lactation on neonates/infants?

Answer

1 Assure the patient that most drugs, with a few exceptions, are not harmful to neonates/infants when taken while a woman is lactating. (B)
2 Recommend that the condition of the child, such as the speed of suckling, sleep status, mood and activity, and weight gain, be observed when a lactating woman decides to take a drug for which some concern over possible unfavorable effects exists. (C)
3 Refer to a textbook, such as *Drugs in Pregnancy and Lactation* by Briggs *et al.* (Lippincott Williams and Wilkins) or visit the website of the Japan National Center for Child Health and Development. (C)

CQ105: How should one respond when asked about the association between folic acid and the occurrence of neural tube defects (NTD) in the fetus?

Answer

1 Explain as follows: (B)
   (i) A reduction in the risk of an NTD is expected if 0.4 mg of folic acid is taken as a daily supplement prior to the establishment of pregnancy.
   (ii) A reduction in the recurrent risk of an NTD is expected when a woman who has previously given birth to an infant with an NTD takes 4.0–5.0 mg of folic acid daily under the supervision of a physician.

CQ106-1: How should one respond when asked about possible abnormalities in the fetus (antenatal diagnosis)?

Answer

1 Prepare an answer after referring to the following facts: (B)
   (i) As the detection of an abnormality in the fetus can lead to strong conflicts between couples, prior genetic counseling and informed consent regarding the available methods used for antenatal diagnosis are required.
   (ii) The general incidence of fetal abnormalities is 3–5%.
   (iii) There are two groups of diagnostic tests: those that allow a definitive diagnosis, and those that allow only the degree of probability of specific abnormalities to be determined (with subsequent confirmative tests required to obtain a definite diagnosis). These tests are only available at a limited number of obstetric facilities (refer to CQ106-2, CQ106-3, CQ106-4, and CQ106-5).

CQ106-2: How should one approach the use of an ultrasound study?

Answer

1 When asked, tell the client that an 'Ultrasound study can be included as an antenatal diagnosis method when considered from a broad perspective' (refer to CQ106-1). (A)
2 When asked, tell the client that 'There are two types of ultrasound studies: a 'Routine ultrasound' study, which is performed as part of regular antenatal care; and a 'Fetal ultrasound' study, which is performed for the detection of morphological abnormalities in the fetus. (B)
3 Explain the purpose and clinical significance before any ultrasound study, obtain informed consent regarding the ultrasound study, and confirm which results the clients want to be informed of. (C)
4 Tell the client as follows when asked about the purpose of a 'Routine ultrasound' study. (B)
   (i) During early pregnancy
      • To detect abnormalities, including ectopic pregnancy, blighted ovum, embryo death, and chorionic diseases (refer to CQ203 and CQ204).
      • To determine the expected birth date (refer to CQ009).
      • To confirm and determine the number of fetuses and the chorionicity of the placenta in

cases with multifetal pregnancies (refer to CQ701).
- To detect morphological abnormalities in the small pelvis of patients (refer to CQ504).

(ii) During mid-pregnancy and late pregnancy
- To assess fetal development (refer to CQ001 and CQ307-1).
- To assess fetal position (refer to CQ001).
- To assess the placental site and volume of amniotic fluid (refer to CQ001, CQ304, CQ305, CQ306-1, and CQ306-2).
- To measure the length of the uterine cervix (refer to CQ301 and CQ302).

5 Perform a 'Fetal ultrasound' while considering the following points:
(i) Perform a 'Fetal ultrasound' after obtaining informed consent. (C)
(ii) A 'Fetal ultrasound' should not be used as a universal screening tool. (B)
(iii) A 'Fetal ultrasound' is sometimes performed in a stepwise method. (C)
(iv) Most reports indicate that appropriate timings for a 'Fetal ultrasound' include gestational weeks of 10–13, 18–20, and 28–31. (B)
(v) A 'Fetal ultrasound' cannot be used to confirm chromosomal aberrations in the fetus (refer to CQ106-1). (A)
(vi) Provide genetic counseling before and after a 'Fetal ultrasound' study is performed to detect the possible presence of chromosomal aberrations in the fetus. (C)

CQ106-3: How should women in whom a thickened nuchal translucency (NT) is incidentally found be treated?

Answer

1 Consider the ethical problems involved in notifying the patient of a thickened NT, as a 'Routine ultrasound' study is considered an antenatal diagnosis method (refer to CQ106-1 and CQ106-2). (A)
2 Remember that the accurate measurement of an NT requires the following: (C)
(i) A stage of pregnancy between gestational week 11^{+0} and 13^{+6}.
(ii) Sufficient magnification of the upper trunk of the fetus (Fig. 1).
(iii) Measurement on a sagittal section, as shown in Figure 1.
3 Explain that the implications of a thickened NT are as follows: (C)
(i) A fetus with an NT of ≥3 mm, 4 mm, 5 mm, or 6 mm has a threefold, 18-fold, 28-fold, or 36-fold higher risk than the respective risk based on maternal age of having 21-trisomy, 18-trisomy, or 13-trisomy.
(ii) More than 90% of live-born infants with a normal karyotype but with an NT of ≥3.5 mm survive without developing any congenital diseases.
(iii) Approximately 70% of fetuses with a chromosomal aberration have an NT that is ≥95th percentile value and that increases from 2.1 mm to 2.7 mm with advancing gestation during the 11th to 14th weeks of gestation. The 99th percentile value for NT is 3.5 mm, independent of the gestational week.
4 When asked, tell the client that a 'Chromosomal analysis using amniotic fluid is needed for a definite diagnosis of chromosomal aberration.' (A)

CQ106-4: How should women in whom a short fetal femur length is observed be treated?

Answer

1 Measure the length of all the fetal long bones, including the femur, tibia, fibula, humerus, radius, and ulna. Assess the degree of shortening using the standard deviation (SD) from the mean for each bone. (C)
2 Suspect the presence of fetal abnormalities, such as fetal growth restriction, chromosomal aberration, or skeletal dysplasia, and refer the woman to a secondary or tertiary institution in cases with a severely short femur of below the mean minus 3SD. (C)
3 Treat the woman while considering that only a limited number of institutions are capable of performing the detailed examinations necessary for a definite diagnosis. (B)

CQ106-5: How should one be cautious of the use of chromosomal and genetic tests for prenatal diagnosis?

Answer

1 Provide genetic counseling and obtain informed consent before performing any chromosomal or genetic tests. (C)
2 Tell the client, 'Examinations using chorionic villi, amniotic fluid, and cord blood are usually confirmative for a diagnosis (confirmatory diagnostic tests) of fetal chromosomal aneuploidies' (refer to Table 1 in CQ106-1). (B)
3 Tell the client, 'Examinations using maternal blood are non-confirmative for the diagnosis (screening

tests) of fetal chromosomal aneuploidies' (refer to Table 1 in CQ106-1). (B)
4 Tell the client, 'Non-invasive prenatal tests (analysis of cell-free DNA in maternal blood) only screen for trisomy 21, trisomy 18 and trisomy 13, at present.' (C)
5 Tell the client, 'Whole genome analyses, e.g. a microarray analysis or next-generation sequencing, include results of uncertain clinical significance.' (C)

CQ107: How should one respond to questions regarding exercise during pregnancy?
Answer

1 Exercises to develop adequate strength may contribute to the maintenance and promotion of a healthy lifestyle. (B)
2 No evidence exists supporting any favorable effects of exercise on the prevention of pregnancy-induced hypertension, gestational diabetes mellitus, or prolonged labor. (C)
3 Women with the following complications should refrain from regular exercise: (A)
   (i) Serious diseases of the heart and lung.
   (ii) Threatened preterm labor, cervical incompetency, shortened uterine cervix, or premature rupture of the membranes.
   (iii) Genital bleeding, placenta previa, or a low-lying placenta.
   (iv) Pregnancy-induced hypertension.
4 Women should refrain from the following exercises: (B)
   (i) Exercises requiring a supine or standing position with minimal movement for long periods of time.
   (ii) Activities with an inherent increased risk of falling or traumatic injuries.
   (iii) Scuba diving.
5 Women with the following symptoms should discontinue all exercise: dizziness, headache, chest pain, dyspnea, muscle weakness, calf pain or a swollen calf, uterine contractions or discomfort in the abdomen, decreased number of fetal movements, and bleeding or an increased watery discharge from the vagina. (B)
6 An appropriate heart rate target zone should be maintained while performing aerobic exercise. (B)

CQ108: How should pregnant women who smoke or who are exposed to passive smoking be treated?
Answer

1 Ask women about their smoking status at an early stage in their pregnancy. (B)
2 Recommend that women quit smoking. (B)
3 Respond as follows when asked about the effects of active and passive smoking: (B)

   'Active and passive smoking have unfavorable effects on human health, pregnancy outcomes, and fetal and child development and health.'

4 Recommend that the woman's partner quit smoking. (C)
5 Recommend that women avoid passive smoke. (C)

Chapter C. Obstetrical Complications during the First Trimester of Pregnancy

CQ201: How should women with hyperemesis gravidarum be treated?
Answer

1 Recommend 'frequent small meals' and the frequent intake of salt-containing fluids, such as sports drinks. (A)
2 Administer fluids i.v. to patients with dehydration. (A)
3 Add thiamine hydrochloride (vitamin B1) to the fluid to prevent Wernicke's encephalopathy. (A)
4 Consider the administration of oral pyridoxine (vitamin B6). (C)
5 Consider the use of anti-emetic drugs for patients who are unresponsive to the treatments shown above in Answers 1 to 4. (C)
6 Be cautious of the possible occurrence of deep vein thrombosis. (C)

CQ202: How should women with a presumed abortion at <12 weeks of gestation be treated?
Answer

1 Try to rule out an ectopic pregnancy as well as a heterotopic pregnancy (multiple pregnancies occurring simultaneously inside and outside of the uterus). (A)
2 Diagnose as a 'missed abortion' after at least two examinations performed at an appropriate time interval. (B)
3 Treat patients with abortions as follows:
   I. For patients with missed, incomplete, or progressive abortions;
      (i) Conservative treatment without surgical procedures or active treatment with surgical evacuation. (A)

(ii) Provide information regarding the risks of unscheduled procedures to any remaining conceptus *in utero* even after surgical evacuation, and be cautious of possible molar pregnancy. (B)

II. For patients with complete abortions, only follow-up without surgical intervention is sufficient. (C)

CQ203: How should patients with an ectopic pregnancy be treated?

Answer

1 An ectopic pregnancy should be suspected in women with a positive pregnancy test result (urinary or serum hCG) who exhibit any of the following signs: (B)
   (i) No gestational sac (GS) within the uterus even at and after 5 weeks of gestation.
   (ii) A GS-like mass outside the uterus.
   (iii) A considerable amount of fluid in the Douglas pouch.
   (iv) Signs indicative of a reduction in the circulating blood volume (anemia, tachycardia, or hypotension).
   (v) No chorionic villi in the evacuated conceptus.
   (vi) Complaints suggestive of an acute abdomen.
2 Choose surgical, medical, or expectant management after a careful assessment of the general condition of the patient, the site of the ectopic pregnancy, the hCG value, the presence or absence of fetal cardiac activity, and the volume of the abnormal mass in the pelvic cavity. (B)
3 Choose either a laparoscopic approach or a laparotomy as a surgical treatment for cases with a tubal pregnancy, according to both the patient's condition and the institutional policy. (B)
4 Closely monitor patients who are being treated medically or expectantly with caution for intra-abdominal bleeding, persisting ectopic pregnancy, and chorionic diseases. (B)
5 Confirm a non-pregnant level of hCG during a follow-up examination of patients treated medically or expectantly. (C)
6 Remember that the incidence rate of heterotopic pregnancy is higher among women using assisted reproductive technology than among women using natural conception. (C)

CQ204: How should women with recurrent pregnancy loss be treated?

Answer

1 Diagnose patients with ≥3 successive spontaneous abortions as having 'habitual abortion.' (A)
2 Try to reduce the anxiety of couples through supportive counseling. (B)
3 Provide the following information: (B)
   (i) Both aging and the number of prior abortions decrease the rate of a successful outcome during a subsequent pregnancy.
   (ii) No causative factors can be specified in more than 50% of patients, even after the examinations indicated in Answer 4 below have been performed.
   (iii) There are no established treatments for patients with unexplained habitual abortions.
   (iv) The expected successful pregnancy rate is 60–70%, even in the absence of treatment, in not-advanced aged women with unexplained habitual abortions and a history of 3–4 prior abortions.
4 Perform the following examinations when the couples want to seek the cause of the habitual abortions:
   (i) Detection of anti-phospholipid antibodies, including lupus anticoagulant, anti-cardiolipin antibody, and anti-cardiolipin β2GP1 antibody. (A)
   (ii) Chromosomal analysis of the patient and the partner after obtaining informed consent. (B)
   (iii) Transvaginal ultrasonography, hysterosalpingography, and/or hysteroscopy for the detection of anatomical deformities of the genital tract. (A)
   (iv) Chromosomal analysis of the aborted conceptus, if available. (C)
5 Diagnose patients with habitual abortion as having 'antiphospholipid antibody syndrome' if they test positive for an anti-phospholipid antibody ≥2 times. (A)
6 Remember that most researchers consider 'paternal lymphocyte immunization' to be ineffective. Conduct lymphocyte immunotherapy using irradiated lymphocytes only after a serious consideration of the indications (see corresponding paragraph in the Discussion). (A)

CQ205: What cautions are required for induced abortion (dilatation and curettage) at <12 weeks of gestation?

Answer

1 Adhere strictly to Japanese law for the performance of artificial abortion. (A)

2 Before the procedure, confirm the gestational week, parity, and the presence or absence of asthma, drug allergies, and current use of drugs. (A)
3 Before the procedure, confirm the anatomical features inside and outside of the uterus using digital and ultrasonographic examinations. (A)
4 Perform the following preoperative examinations: blood typing, including ABO and Rh (D) (B); a complete blood count (B); electrocardiography before or during the procedure (C); and tests for the detection of infections, such as an HBV. (C)
5 Obtain informed consent as to possible complications arising from the anesthesia or procedure. (C)
6 Confirm that oxygen is easily available. (A)
7 Try to avoid injuries and infections in the uterus and adjacent organs. (A)
8 Confirm the presence or absence of chorionic villi in the evacuated conceptus. (A)
9 Confirm twice the completeness of the procedure using transvaginal ultrasonography immediately after and 1 week after the procedure. (C)

CQ206: How should women with genital bleeding and/or abdominal pains (threatened abortion) at <12 weeks of gestation be treated?

Answer

1 For patients with undetectable fetal cardiac activity during an ultrasonography examination, imagine the possibility of early-stage pregnancy, missed abortion, ectopic pregnancy, trophoblastic disease, and incomplete or complete abortions as differential diagnoses. (B)
2 Remember that no drugs have been proven to be effective for improving outcomes. (B)
3 In patients with detectable subchorionic hematoma and fetal cardiac activity, consider bed rest as a possible treatment. (C)

Chapter D. Obstetrical Complications during the Second and Third Trimesters of Pregnancy

CQ301: How should women with suspected cervical incompetence be treated?

Answer

1 Treat women suspected of having cervical incompetency based on their history of previous pregnancies using either of the following modalities: (B)
   (i) Follow-up the current pregnancy conservatively with special attention to the length and dilatation of the uterine cervix.
   (ii) Use prophylactic cervical cerclage.
2 Treat women suspected of having cervical incompetency based on the course of the current pregnancy using either of the following modalities: (A)
   (i) Monitor patients closely using cautions similar to those for patients with threatened abortion/preterm labor.
   (ii) Use therapeutic cervical cerclage.
3 Use prophylactic cervical cerclage soon after ≥12 weeks of gestation. (B)
4 Control any infection first if the patient shows clinical signs of an infection, such as fever, leukocytosis, and/or an elevated serum C-reactive protein level. (C)
5 Consider that progesterone supplementation is expected to be effective as an adjunct to close observation or cervical cerclage. (C)
6 Administer progesterone after obtaining informed consent regarding the benefits and potential risks. (B)

CQ302: How should women with preterm labor be treated?

Answer

1 Remember that women with the following characteristics have a high risk for preterm delivery: (A)
   Past history: previous preterm delivery and/or post-conization of the uterine cervix.
   Current pregnancy: multiple pregnancy, bacterial vaginosis, and/or shortened uterine cervix.
2 Measure the cervical length in all women with gestational week of 18–24. (C)
3 Diagnose as preterm labor in cases with regular uterine contractions and/or premature maturation of the uterine cervix (dilatation of the cervix and/or shortened cervical length). (B)
4 Suspect a placental abruption in patients with an abnormal fetal heart rate pattern. (B)
5 Consider hospitalization and/or the administration of a tocolytic drug in patients with diagnosed preterm labor. (B)
6 Cooperate with hospitals having neonatal intensive care unit (NICU) beds, if necessary. (B)
7 Administer betamethasone (12 mg twice, i.m., at an interval of 12 h) to women if delivery at 22–33 weeks is considered to be inevitable. (B)

8 Measure the maternal body temperature, white blood cell count, and C-reactive protein (CRP) level and initiate antibiotic therapy if an intrauterine infection is suspected. (C)
9 Consider an early delivery in patients suspected of having an amniotic fluid infection. (C)

CQ303: How should women with premature rupture of membranes (PROM) be treated?

Answer

1 Assess the body temperature, pulse rate, tenderness of the abdomen, complete blood count (CBC), C-reactive protein (CRP) level, and non-stress test (NST) findings (at ≥26 weeks) at an adequate interval to detect 'clinical chorioamnionitis' and to confirm fetal well-being. (C)
2 Refrain from frequent digital examinations and examine the vagina and uterine cervix using Cusco's speculum to minimize the risk of ascending infection. (B)
3 Consider an early delivery within 24 h in a patient diagnosed as having 'clinical chorioamnionitis' at ≥26 weeks of gestation. (C)
4 Monitor the fetal heart rate (FHR) patterns continuously in parturient febrile (≥38.0°C) women at ≥26 weeks of gestation and pay attention to maternal septicemia. (B)
5 Induce labor or expect the onset of spontaneous labor in cases with a gestational week of ≥37. (B)
6 Treat women with a gestational week of 34–36 in a similar way to women with a gestational week of ≥37. (C)
7 Treat women with a gestational week of <34 as follows:
  (i) Refer the patient to a facility with neonatal intensive care unit (NICU) beds or cooperate with a facility with NICU beds in treating the patient. (B)
  (ii) Treat expectantly with the administration of antibiotics, in principle. However, an early delivery is also an acceptable option in some situations. (C)
8 Administer steroids to a mother with a gestational week of <32 to facilitate fetal lung maturation and to prevent fetal intracranial hemorrhage (refer to CQ303). (B)
9 Treat women with a gestational week of <26 according to the policy of each hospital. (B)

CQ304: How should women with placenta previa be treated?

Answer

1 Screen all women around 20 weeks with ultrasonography for the detection of women with an increased risk of placenta previa and diagnose as placenta previa before 32 weeks of gestation using transvaginal ultrasonography. (B)
2 Refer the patient to an appropriate facility before 33 weeks if contingency plans are considered to be insufficient. (C)
3 Prepare treatments, including the possibility of a midnight emergency cesarean section at any gestational week, once a decision has been made to continue treating the patient at your facility. (C)
4 Be cautious of placenta accreta, especially in women with a previous cesarean section and in women with a placental site close to the previous uterine scar. (B)
5 Perform an elective cesarean section before 38 weeks of gestation. (B)
6 Prepare for the possible need for a blood transfusion before elective cesarean section or during an emergency cesarean section. (A)
7 Inform women and their families of the risks of blood transfusion and an emergency hysterectomy in advance. (A)

CQ305: How should women with a low-lying placenta be treated?

Answer

1 Consider an elective cesarean section in women with a placental edge within 2.0 cm from the internal orifice of the uterus at 36–37 weeks. (C)
2 Be cautious of placenta accreta in women with repeat cesarean sections and a placental site on the anterior uterine wall. (B)
3 Be cautious of post-partum hemorrhage. (A)

CQ306-1: How should women with polyhydramnios be treated?

Answer

1 Suspect polyhydramnios in women with an extraordinarily large uterus and assess the volume of amniotic fluid using the amniotic fluid index or the single deepest pocket measured using ultrasonography. (B)
2 Investigate the cause after the diagnosis of polyhydramnios. (A)
3 Consider amnioreduction in patients with symptoms derived from a large uterus or signs of premature labor. (C)

CQ306-2: How should women with oligohydramnios be treated?

Answer

1 Suspect oligohydramnios in women with an extraordinarily small uterus and assess the volume of amniotic fluid using the amniotic fluid index or the single deepest pocket measured using ultrasonography. (B)
2 Investigate the cause after the diagnosis of oligohydramnios at mid-gestation. (A)
3 Be cautious of the fetal well-being. (B)

CQ307-1: How should one screen for patients with fetal growth restriction (FGR)?

Answer

1 Measure the fundal height of the uterus at each antenatal visit to detect patients with FGR. (B)
2 Estimate the fetal size in all women around 30 weeks using ultrasonography and repeat examinations if necessary. (B)
3 Be cautious of FGR, especially in women with risk factors for FGR, such as hypertension, hyperglycemia, kidney diseases, inflammatory intestinal diseases, anti-phospholipid antibody syndrome, autoimmune diseases, cardiac diseases, smoking, alcohol/caffeine abuse, previous FGR, a lean body, and inadequate weight gain during the current pregnancy. Try to remove risk factors and to treat them appropriately. (C)
4 When FGR is suspected, confirm the estimated date of confinement using fetal measurements obtained during the early stage of pregnancy. (B)
5 Diagnose as FGR when the estimated fetal weight (EFW) is below the −1.5 SD value of the mean EFW but not the mean birthweight according to the gestational week. Refer to the abdominal circumference of the fetus and serial changes in the EFW when diagnosing FGR. (C)

CQ307-2: How should women with fetal growth restriction (FGR) be managed?

Answer

1 Investigate the cause of FGR, focusing on the following points:
   (i) Presence of risk factors for FGR (see CQ307-1). (B)
   (ii) Ultrasonography examination for the detection of fetal malformation and abnormal cord insertion. (B)
   (iii) Blood and physical testing
      • Blood tests for the detection of infection, such as rubella, cytomegalovirus, and toxoplasma. (C)
      • Findings associated with pregnancy-induced hypertension, including changes in blood pressure, protein in the urine, and laboratory parameters, such as the platelet count, antithrombin activity, aspartate transaminase (AST), lactate dehydrogenase (LDH), and uric acid levels. (C)
      • Hyperglycemia, thyroid dysfunction, and anti-phospholipid antibodies. (C)
2 Suspect chromosomal aberration in cases with following abnormalities (See CQ106-1 to CQ106-5): (C)
   • Multiple malformations
   • Characteristic malformations suggestive of chromosomal aberration
   • Severe FGR
3 Consider terminating the pregnancy after taking the results of the following examinations into account:
   (i) Non-stress test (NST), contraction stress test (CST), and biophysical profile score (BPS) (B)
   (ii) Umbilical artery flow velocity waveform using Doppler ultrasonography (B)
   (iii) Serial changes in measurements of the fetus (C)
4 Monitor intrapartum fetal heart rate (FHR) patterns continuously. (B)

CQ308: How should women with placental abruption be treated?

Answer

1 Remember that pregnancy-induced hypertension, previous placental abruption, intrauterine infection (chorioamnionitis), and trauma to the abdomen (such as a car accident) are risk factors for placental abruption. (B)
2 Provide information regarding early clinical symptoms associated with placental abruption to all women with a gestational term of around 30 weeks. (C)
3 Suspect placental abruption and perform the following tests when a woman shows abnormal fetal heart rate (FHR) patterns concomitant with clinical signs of premature labor, such as genital bleeding, increased uterine activity, and/or abdominal pain:
   (i) Ultrasonography. (B)
   (ii) Blood test, including platelet count, antithrombin (III) activity, FDP or D-dimer, prothrombin time, aspartate transaminase (AST), and lactate dehydrogenase (LDH). (B)
4 Monitor the FHR patterns continuously in women with an increased uterine activity after trauma to the abdomen. (C)
5 Plan for prompt delivery, in principle, after the diagnosis of a placental abruption. (A)

6 Consider expectant management in a patient with a placental hematoma if the patient shows all of the following signs: unchanged size of the hematoma, normal FHR patterns, no uterine contractions, and no exacerbation of laboratory parameters for hemostasis and coagulation. (C)
7 Initiate treatment for disseminated intravascular coagulation (DIC) promptly using packed red blood cells, fresh frozen plasma, and antithrombin products when a patient/blood test shows signs of DIC. (A)
8 Choose either of the following two modalities in a patient with a fetal death caused by placental abruption after considering the patient's condition and the capacity of the facility while simultaneously assessing and treating the DIC: (B)
   (i) Facilitated vaginal delivery with the aid of an amniotomy and/or oxytocin.
   (ii) Emergency cesarean section.

CQ309-1: What cautions are required for the diagnosis and treatment of pre-eclampsia?

Answer

For diagnosis:

1 Determine the spot-urine protein/creatinine ratio (g/g, spot-urine P/Cr) after quantifying the protein and creatinine concentrations in a spot-urine specimen in cases with any of the following findings: (C)
   (i) Dipstick test result ≥1 + in the presence of hypertension.
   (ii) Dipstick test result ≥1 + on two successive antenatal visits.
   (iii) Dipstick test result ≥2 + .
2 When asked, tell the client, 'A P/Cr ≥0.27 corresponds to a protein loss in the urine of >0.3 g/24 h.' (C)
3 Measure the blood pressure (BP) again and determine the spot-urine P/Cr within 48 h in patients who exhibit a systolic BP ≥ 140 mmHg and/or a diastolic BP ≥ 90 mmHg in the presence of dipstick test result ≥1 +. (C)

For treatment:

4 Strongly recommend the admission of the patient to a hospital, in principle. (B)
5 Repeatedly assess the physical findings (BP and maternal weight), blood tests (platelet, antithrombin activity, AST, LDH, and urate levels), and urine (P/Cr) test results in the mother and the development and well-being of the fetus. (B)
6 Collaborate with facilities that have a neonatal intensive care unit (NICU) when treating patients at <32 weeks of gestation. (B)
7 Perform the following examinations if a patient complains of epigastric pain, headache, and/or scintillating scotoma:
   (i) Measure BP. (A)
   (ii) Non-stress testing. (A)
   (iii) Blood tests, including platelet count, antithrombin activity, AST, ALT, and LDH. (B)
   (iv) Ultrasonography. (C)
8 Consider the induction of labor in patients with mild pre-eclampsia at ≥36 weeks of gestation. (B)
9 Measure the BP regularly, restrict oral feeding, and obtain informed consent to perform an emergency cesarean section during a trial vaginal delivery. (B)
10 Monitor the intrapartum fetal heart rate (FHR) patterns continuously. (B)
11 Refer to Table 2 in choosing an appropriate drug for the control of hypertension. (B)

CQ309-2: How should women with an increased risk of eclampsia be treated?

Answer

1 Measure the blood pressure (BP) and semiquantify the protein level in the urine in all women who are admitted for delivery. (B)
2 Measure the BP regularly at an appropriate interval in parturient women diagnosed as having pregnancy-induced hypertension, a positive urine protein result at admission, or the presence of hypertension at admission. (B)
3 Determine in advance the absolute BP that should be reported to physicians at each facility. (B)
4 Consider that the risk of eclampsia is relatively high in women with the following conditions: (C)

   A history of eclampsia, pregnancy-induced hypertension (especially in teenagers), hemolysis, elevated liver functions and low thrombocyte count (HELLP) syndrome, gestational proteinuria, a multifetal pregnancy, and/or reduced antithrombin activity.

5 Measure the BP if parturient women complain of headaches, blurred vision, or epigastric pain. (B)
6 Administer $MgSO_4$ with or without antihypertensive drugs to parturient women with severe hypertension (systolic BP ≥ 160 mmHg and/or diastolic BP ≥ 110 mmHg). Try to maintain a BP in the range of 140–159/90–109 mmHg (See CQ309-1). (C)

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7 Diagnose a 'hypertensive emergency' in women with a systolic BP ≥ 180 mmHg and/or a diastolic BP ≥ 120 mmHg and initiate anti-hypertensive therapy. (B)
8 When women experience a convulsive fit, take all of the following measures: (B)
  (i) Check vital signs, maintain an i.v. line, prevent the tongue from blocking the airway, and administer oxygen.
  (ii) Administer anticonvulsants (see Discussion).
  (iii) Continue the administration of $MgSO_4$ for 24 h at a rate of 1.0–2.0 g/h to prevent recurrences.
9 When women are found to be unconscious (or convulsive), perform all four of the following items: (B)
  (i) Initiate treatment for eclampsia (See Answer 8).
  (ii) Perform a differential diagnosis from other brain strokes, such as brain hemorrhage and brain infarct (See Discussion).
  (iii) Perform blood tests, including a complete blood count (CBC), aspartate transaminase (AST) level, alanine transaminase (ALT) level, lactate dehydrogenase (LDH), FDP or D-dimer level, antithrombin activity, and an arterial blood gas analysis. Perform physical examinations for the detection of palsy of the extremities, presence of abnormal reflex, and anisocoria.
  (iv) Perform a brain computed tomography/magnetic resonance imaging examination, if necessary.
10 Plan for an early delivery after stabilizing the condition of the patient, with careful attention to the fetal well-being. (B)

CQ310: How should women with presumptive fetal macrosomia (defined as a birth weight ≥4000 g) be treated?

Answer

1 Consider possible macrosomia in women with any of the following conditions: (C)
  (i) Glucose intolerance.
  (ii) Previous diagnosis of macrosomia and/or shoulder dystocia.
  (iii) An infant with a presumed heavy-for-date weight.
2 Determine the delivery mode after informing the patient of the difficulty in making an accurate antenatal diagnosis of macrosomia and discussing the issue. (C)
3 Consider an emergency cesarean delivery in women with prolonged or arrested labor while taking the possibility of shoulder dystocia into account. (C)
4 When treating women with shoulder dystocia, ask for assistance from the medical staff and use a suprapubic pressure with a combination of McRoberts' maneuver and an episiotomy. Do not use a 'fundal pressure'. (C)
5 Recommend a 75-g oral glucose tolerance test (OGTT) at 6–12 weeks post-partum for women with a history of fetal macrosomia/shoulder dystocia and an unknown glucose tolerance status or non-gestational diabetes mellitus during the current pregnancy. (C)

CQ311-1: How should women with post-partum hemorrhage (PPH) be treated?

Answer

1 Consider that sustained PPH and the ensuing 'obstetrical bleeding emergency' are one of the leading causes of maternal mortality. (B)
2 Actively manage the third stage of labor to prevent PPH. (C)
3 Suspect PPH and initiate treatment for PPH when the amount of blood loss exceeds 500 mL (or 1000 mL in cases undergoing a cesarean section) (See CQ311-2). (C)
4 Investigate systematically the causes of PPH, including uterine atony, birth canal injury, retained placenta, uterine inversion, uterine rupture, amniotic fluid embolism, coagulopathy, etc. (C)
5 Refer to CQ311-2 and treat patients as having an 'obstetrical bleeding emergency' if massive blood loss occurs or shock is suspected. (B)

CQ311-2: How should women with an 'obstetrical bleeding emergency' be treated?

Answer

1 Assess deficiency in the circulating blood volume based on both the shock index (SI) value and the measured blood loss volume as follows: (B)

SI = pulse rate (per min) ÷ systolic blood pressure (mmHg).

2 When women exhibit an SI of ≥1.0 or an estimated blood loss of ≥1.0 L during vaginal delivery (≥2.0 L for cesarean delivery), treat as follows, while simultaneously clarifying and removing the cause of bleeding:

(i) Insert an i.v. catheter with a large gauge and replace a sufficient volume of fluid. (A)
(ii) Consider a blood transfusion and the transportation of the patient to a secondary or tertiary hospital. (B)
(iii) Monitor blood pressure, pulse rate, bleeding amount, and urine output. (A)
(iv) Monitor the saturation of peripheral oxygen (SpO_2) level. (C)

3 When women exhibit continuous bleeding, a frequent SI of ≥1.5, an obstetrical DIC score of ≥8, or abnormal vital signs (oliguria, coldness of peripheral skin, or decreased SpO_2), perform the following treatments while simultaneously clarifying and removing the cause of bleeding:
(i) Declare an 'obstetrical bleeding emergency.' (A)
(ii) Initiate blood transfusion with packed red blood cells and fresh-frozen plasma, if available. (B)
(iii) Transport the patient to an appropriate institution. (C)
(iv) Administer anti-DIC drugs and platelet concentrate to women with an obstetrical DIC score of ≥8. (C)

4 Uncross-matched group-specific blood, compatible red cell concentrate transfusion with a different ABO, compatible fresh-frozen plasma transfusion with a different ABO, and compatible platelet concentrate transfusion with a different ABO can be administered to women who are suffering from 'obstetrical critical hemorrhage' or imminent cardiac arrest as a result of hemorrhage in the absence of cross-matched group-specified blood. (B)

CQ312: How should 'amnioinfusion' be considered?
Answer

1 Consider the effects of amniotic fluid infusion (amnioinfusion) as follows: (C)
I Intrapartum
(i) Amnioinfusion may decrease the compression of the umbilical cord, resulting in the following effects:
- Improvement in the fetal heart rate (FHR) pattern.
- Avoidance of emergency cesarean section.
- Improvement in neonatal condition.

(ii) Amnioinfusion has not been demonstrated to have a prophylactic effect on the development of meconium aspiration syndrome.

II Antepartum
(i) Amnioinfusion may be effective for improving the accuracy of antenatal diagnosis using ultrasonography in women with oligohydramnios.
(ii) Whether amnioinfusion is beneficial to fetuses with long-term oligohydramnios remains to be studied.

2 Be cautious of amniotic fluid embolism, pulmonary edema and hypertonic uterus during the procedure. (B)

CQ313: When should one clinically suspect the early stage of HELLP syndrome and acute fatty liver of pregnancy (AFLP)?
Answer

1 HELLP syndrome and AFLP should be suspected when women complain of epigastric symptoms (appetite loss, nausea and vomiting, pain, and/or discomfort) and/or general malaise. (C)
2 Determine the platelet count, antithrombin (AT) activity, AST, and LDH levels in women with any of the following conditions:
(i) Pre-eclampsia. (B)
(ii) Twin pregnancy and a gestational term ≥33 weeks. (C)
(iii) Epigastric symptoms (appetite loss, pain, and discomfort) at a gestational term ≥30 weeks. (C)
(iv) Proteinuria ≥2 + on a dipstick test. (C)
(v) Extraordinary weight gain or loss. (C)

3 Be cautious of HELLP syndrome and AFLP in women with gestational thrombocytopenia (GT, platelet count $<130 \times 10^9$/L; see Discussion) and/or pregnancy-induced antithrombin deficiency (PIATD, AT activity <65% of normal activity; see Discussion). (C)
4 Perform blood tests, including platelet count, AT activity, AST, LDH, and urate levels, in women with GT and/or PIATD. (C)
5 Diagnose clinically the presence of HELLP syndrome or AFLP in women with both an AST > 45 IU/L and an LDH > 400 IU/L after confirming the following findings: (C)
(i) Platelet count $<120 \times 10^9$/L for HELLP syndrome.
(ii) AT activity <60% and platelet count $\geq 120 \times 10^9$/L for AFLP.

CQ314: When should one be cautious about recommending breast-feeding?
Answer

1 Recommend manual and mechanical milk expression when direct breast-feeding is difficult. (C)

2 Breast milk is not recommended for women with the following conditions: (B)
- HIV infection.
- Neonates with galactosemia.
- See CQ104-5 for a list of drugs that are not recommended for use in lactating women

3 Certain drugs can be used to quit lactation. (C)
4 Consider the possibility of engorgement, mastitis, and/or abscess in women with swollen breasts, breast pain, and/or a febrile condition. (B)
5 Instruct patients how to feed neonates with breast milk and recommend early breast-feeding for the prevention of breast engorgement. (C)
6 Treat mastitis as follows:
- Recommend manual/mechanical milk expression and or administer an anti-inflammatory analgesic. (C)
- Administer antibiotics when symptoms do not improve within 24 h or worsen progressively. (B)
- Determine the causative microorganism using sample cultures in cases with long-lasting symptoms suggestive of mastitis. (B)

7 Treat breast abscesses as follows:
- Remove the abscess content using a needle or an incision into the abscess. (B)
- Consider the possibility of an MRSA infection or malignant neoplasm in cases that are resistant to treatment. (B)

CQ315: How should one treat women with post-partum psychiatric disorders?

Answer

1 Be careful about complaints and behavior in post-partum women, as post-partum women are prone to psychiatric disorders. (B)
2 Consult a psychiatrist for the diagnosis and treatment and plan for continuous medical and social support to be provided to women with psychiatric disorders. (C)
3 Recommend quitting breast-feeding for women in whom breast-feeding is likely to worsen the psychiatric disorders (through the lack of sleep), although the majority of psychotropic agents can be used in lactating women (See CQ104-5). (C)

Chapter E. Parturition

CQ401: What medicines and apparatuses should be available in or near the delivery room?

Answer

1. Equip the apparatuses, instruments, and drugs shown in Tables 1 and 2.

CQ402: How should women with a breech presentation be treated?

Answer

1 Confirm that a woman meets all of the following three conditions necessary for the safe performance of external cephalic version: (C)
(i) Emergency cesarean section is available.
(ii) No previous cesarean delivery.
(iii) Fetus is mature.
2 Choose elective cesarean delivery for a patient with a knee or foot presentation, an estimated fetal weight of <2500 g, a gestational week of <37, or presumed cephalic-pelvic disproportion. (C)
3 Be able to consider a vaginal delivery in women without the characteristics described in Answer 2 after fulfilling both of the following two requirements: (C)
(i) Availability of well-trained and full-time medical staff with experience performing breech deliveries.
(ii) Women are informed of the risks and benefits of both vaginal and cesarean deliveries.
4 Obtain written informed consent before performing a vaginal breech delivery. (A)

CQ403: How should women who wish to undergo a trial of labor after a cesarean delivery (TOLAC) be treated?

Answer

1 Obtain written informed consent for TOLAC after explaining the risks associated with a TOLAC. (A)
2 Select TOLAC for women who meet all five of the following conditions: (C)
(i) No presumed cephalic-pelvic disproportion.
(ii) Availability of emergency cesarean delivery and emergency treatment for uterine rupture.
(iii) Only one previous cesarean delivery.
(iv) Previous uterine incision was a low transverse incision, and the patient had an uneventful post-partum course.
(v) No history of uterine rupture or trans-myometrial surgery.
3 Do not use prostaglandin for the induction and/or augmentation of labor. (A)
4 Monitor fetal heart rate (FHR) patterns using cardiotocography during TOLAC. (A)
5 Pay attention to vital signs and abdominal pain in the mother after completing vaginal delivery. (B)

CQ404: How should women with prolonged labor as a result of weak labor pains be treated?

Answer

1 Recommend the oral intake of water or administer i.v. fluids. (B)
2 Refer to CQ415-1, CQ415-2, and CQ415-3 and perform all of the following steps when using uterotrophic drugs: (A)
   (i) Obtain informed consent for the use of uterotrophic drugs.
   (ii) Do not use multiple uterotrophic drugs simultaneously.
   (iii) Remember that no exceptional use is allowed for the initiation dose, the dose increment, or the maximum dose.
   (iii) Apply a cardiotocogram prior to the administration of the uterotrophic drugs.
   (iv) Use an infusion pump for the i.v. administration of the uterotrophic drug and increase the dose at an interval of ≥30 min.
   (v) Record the fetal heart rate (FHR) pattern continuously using a cardiotocogram, in principle.
   (vi) Transient discontinuation of FHR monitoring with the cardiotocogram is feasible at the physician's discretion.
   (vii) A well-trained nurse, midwife, or doctor should watch the FHR pattern.
   (viii) Consider withholding the uterotrophic drug if an abnormal FHR pattern appears.
   (ix) Assess maternal blood pressure and pulse rate every 2 h, in principle.
3 Remind that cord prolapse may occur after an amniotomy or the spontaneous rupture of the fetal membranes. Perform an amniotomy after confirming 'the engagement of the fetal head'. (B)
4 Record the FHR pattern continuously with a cardiotocogram in febrile women with a body temperature of ≥38.0°C (See the Discussion in CQ304). (B)
5 Be careful of post-partum hemorrhage as a result of uterine atony. (B)
6 Do not inject prostaglandin $F_2\alpha$ into the uterine muscle of post-partum women, in principle. (A)

CQ405: How should the induction of labor at a time not medically indicated be dealt with?

Answer

1 Be able to induce labor on the demand of a woman or after informed consent with respect to the benefits and risks associated with the induction of labor. (B)
2 Adhere strictly to the Answers in 'CQ412' regarding the induction of labor. (A)
3 Adhere strictly to the Answers in CQ415-1, CQ415-2, and CQ415-3 regarding the use of uterotrophic drugs. (A)

CQ406: What criteria are necessary for a safe operative delivery?

Answer

1 Use operative deliveries (vacuum and forceps deliveries) as forced delivery methods in which an immediate delivery can be achieved. (A)
2 Only a well-trained doctor or a doctor supervised by a well-trained doctor should perform operative deliveries, such as vacuum and forceps deliveries. (B)
3 Monitor the fetal heart rate (FHR) patterns continuously during operative deliveries. (C)
4 Use operative deliveries only in women who meet at least one of the following conditions: (B)
   (i) Prolonged labor or arrested labor.
   (ii) A shortened second stage of parturition is desired because of unfavorable maternal conditions.
   (iii) A non-reassuring fetal status.
5 Use operative deliveries only in women who meet all four of the following conditions:
   (i) Gestational term ≥34 weeks. (C)
   (ii) No presumed cephalic-pelvic disproportion. (A)
   (iii) Completely dilated uterine cervix with ruptured fetal membranes. (B)
   (iv) After engagement of the fetal head (See the Discussion). (B)
6 Pull during uterine contractions, in principle. (B)
7 Do not use vacuum delivery for more than 20 min. Perform forceps or an emergency cesarean delivery in cases with a failed vacuum delivery. (B)
8 Do not use vacuum delivery after more than five vacuum trials even when within a 20-min period after the initiation of vacuum delivery. (B)
9 Use outlet-, low-, or lower mid-forceps delivery only in women with a fetal rotation of <45 degrees, in principle. Only a well-trained physician or a physician supervised by a well-trained physician should perform a forceps delivery in situations other than that described above. (B)

CQ407: How should women with meconium staining be treated?

Answer

1 Pay attention to meconium staining in women with ruptured fetal membranes. (B)
2 Apply cardiotocogram to women with meconium staining for at least 20 min to confirm fetal well-being. (B)
3 No specific treatment is required in women with normal fetal heart rate (FHR) patterns. (B)
4 Be cautious of respiratory problems, such as meconium aspiration syndrome, in the neonate. (B)

CQ408: How should a fetus with possible hypoxemia be resuscitated?

Answer

1 Remember that there are no reliable means of improving oxygenation in a fetus. (B)
2 Withhold or decrease the dose of uterotonics, if such a drug is being used (see CQ415-3). (A)
3 The following methods may favorably affect the fetal condition: (C)
   (i) Change in the maternal position from supine to lateral.
   (ii) Oxygen inhalation with a dose of 10–15 L/min.
   (iii) Administration of a tocolytic drug, such as ritodrine (300 mL/h of a bottle containing 50 mg/500 mL), while the mother is in a lateral position.
   (iv) Rapid infusion of lactate Ringer solution (500 mL/20 min).
   (v) Infusion of warmed normal saline into the uterus (see CQ312).
4 Perform an immediate delivery if fetal compromise as a result of hypoxemia is strongly suspected (see CQ411). (A)

CQ409: How should women at ≥41 weeks of gestation be treated?

1 Confirm the estimated date of confinement using fetal measurements obtained during the early stage of pregnancy. (A)
2 Assess fetal well-being once or twice a week. (B)
3 Induce labor or conduct watchful waiting (expectant management) depending on the cervical maturation between 41^{+0} and 41^{+6} weeks of gestation. (B)
4 Consider induction of labor in women at ≥42 weeks of gestation (See CQ412). (B)
5 Adhere strictly to Answers in CQ415-1, CQ415-2, and CQ415-3 when using uterotonic drugs. (A)

CQ410: How should parturient women be treated?

Answer

1 A physician, mid-wife, or well-trained nurse can manage parturient women. (A)
2 Use a 3-cm/min flow velocity for the paper that traces the fetal heart rate (FHR) pattern when using a cardiotocogram. (B)
3 Obtain a cardiotocogram for at least 20 min upon admission or during the first stage of labor to confirm fetal well-being. (B)
4 Once fetal well-being has been confirmed as described in Answer 3, fetal well-being may be monitored using intermittent FHR auscultation (once every 15–90 min) until the next application of a cardiotocogram within 6 h in women without characteristics described in Answer 5. Continuous FHR monitoring throughout the first stage of labor is feasible. (B)
5 Monitor the FHR pattern continuously in women with the following characteristics. Transient discontinuation of FHR monitoring is feasible at the physician's discretion.
   (i) During the use of uterotonic drug, such as oxytocin. (A)
   (ii) During the second stage of labor, in febrile women (≥38.0°C), during the use of a metreurynter containing ≥41 mL, and during painless labor with anesthetics. (B)
   (iii) Women requiring 'increased monitoring' according to Table I, II, and III in CQ411. (B)
   (iv) High-risk pregnancies with any of the following characteristics: (B)

   Maternal factors, including diabetes mellitus, pregnancy-induced hypertension, previous stillborn or infant with cerebral palsy as a result of intrapartum fetal hypoxemia at ≥30 weeks of gestation, or a previous surgical incision into the uterine cavity.

   Fetal factors, including a non-vertex presentation, an estimated fetal bodyweight of <2000 g, fetal growth restriction, and multiple pregnancies.

   Placental factors, such as a low-lying placenta.

   (v) Other women suspected of having poorly controlled maternal complications. (C)
6 Apply a cardiotocogram for at least 20 min in women with any of the following situations:
   (i) Rupture of the fetal membranes. (B)
   (ii) Meconium staining or bloody amniotic fluid. (B)
   (iii) When bradycardia or tachycardia is noted during intermittent FHR auscultation. (A)
   (iv) When the rapid progress of labor is noted or a change in the fetal position is anticipated after urination or defecation. (C)

7 Review the FHR patterns that are being continuously monitored by a cardiotocogram at the following intervals: (C)
   (i) For those who are not at a high risk or those who have an FHR pattern of level 1 or 2: every 30 and 15 min during the first and second stages of labor, respectively.
   (ii) For those at high risk or those who have an FHR pattern of level 3: every 15 and 5 min during the first and second stages of labor, respectively.
   (iii) For those who show an FHR rate pattern of level 4 or 5: watch continuously.

CQ411: How should various fetal heart rate (FHR) patterns be interpreted and how should women with a non-reassuring fetal status be treated?

Answer

1 Consider that the well-being of a fetus can be assured if the FHR pattern has a normal baseline, a normal baseline variability, the presence of acceleration, and the absence of deceleration. (A)
2 Consider that the well-being of a fetus may be impaired if any of the following FHR patterns are present: (B)
   (i) Recurrent late decelerations with absent baseline variability.
   (ii) Recurrent variable decelerations with absent baseline variability.
   (iii) Prolonged deceleration with absent baseline variability.
   (iv) Severe bradycardia with decreased or absent baseline variability.
3 Diagnose a fetus as having a non-reassuring fetal status if an FHR pattern level of 3 to 5 (mild, moderate, and severe variant patterns, as shown in Table I) is present as classified using a combination of three factors: the baseline variability, the baseline, and the presence of various decelerations. (B)
4 Choose one of five treatments (no intervention, increased monitoring, conservative measures for resuscitation of the fetus, preparation for prompt delivery, and prompt delivery) in cases with an FHR pattern of level 2–5, referring to Table III and taking gestational age, the background of the woman, and the capacity of the facility into account. (C)
5 Repeatedly assess the feasibility of a successful vaginal delivery, taking progression and the stage of labor into account, in patients who continue to show a level 3 or 4 FHR pattern after treatment has been altered based on Table III. (B)
6 Perform an emergency cesarean section soon after abandoning vaginal delivery in the situation described in Answer 5. (B)

CQ412: How should labor be induced?

Answer

1 Adhere strictly to Answers in CQ415-1, CQ415-2, and CQ415-3 regarding the use of uterotonic drugs. (A)
2 Do not administer uterotonics to any woman with an unfavorable uterine cervix, in principle. (B)
3 Remember the following three precautions regarding the use of hygroscopic mechanical dilators, such as laminaria rods or a transcervical balloon catheter of ≤40 mL, for the ripening of the cervix:
   (i) Obtain informed consent as to the indications, methods, and possible adverse events associated with these procedures. (B)
   (ii) Perform the procedure in hospitalized women. (B)
   (iii) Pay attention to the possibility of infection regardless of the status of the fetal membranes. Assess the maternal body temperature and the results of laboratory tests, and consider the administration of antibiotics in women with ruptured fetal membranes. (B)
4 In addition, remember the following three cautions regarding the use of a transcervical balloon catheter of ≤40 mL for the ripening of the cervix:
   (iv) Confirm the absence of the umbilical cord near the presenting part of the infant prior to the start of the procedure. (B)
   (v) Promptly apply a cardiotocogram after the commencement of labor. (B)
   (vi) Promptly confirm the absence of prolapse or the descent of the cord at the time of the rupture of the fetal membranes or the balloon prolapse. (B)
5 In addition, remember the following four cautions regarding the use of a transcervical balloon catheter of >40 mL for the ripening of the cervix:
   (vii) Obtain informed consent regarding the benefits and possible risk of umbilical cord prolapse associated with the use of transcervical balloon catheters. (A)
   (viii) Perform continuous FHR monitoring with a cardiotocogram. (B)
   (ix) Use a transcervical balloon catheter ≤150 mL for vertex presentation. (B)

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(x) Ensure the availability of an operating room in case an emergency caesarean section is needed. (C)

6 Continue to elevate the fetal head manually until an emergency cesarean section is available in cases where cord prolapse has occurred. (C)
7 Do not administer uterotonic drugs while using laminaria rods and/or sodium prasterone sulfate hydrate. (A)
8 When combining the use of a transcervical balloon catheter and a uterotonic drug, monitor the FHR for at least 1 h after the application of the transcervical balloon catheter, then initiate the uterotonic drug. (B)
9 Obtain informed consent before the use of a Foley catheter for purposes other than the indicated purposes of a Foley catheter and refer to the instructions for users printed by Minimetro. (C)

CQ413: How should a woman with labor pains or some relevant problem be treated in the absence of data necessary for the management of pregnant women because of a lack of antenatal visits?

Answer

1 Consider her pregnancy to be high risk. (B)
2 Assess the gestational week. (B)
3 Perform tests recommended during routine antenatal care. (B)
4 Try to identify the patient and to confirm that the address/phone number of her family contact is accurate. (B)
5 Listen to her background in a supportive manner. Consult a city officer to seek public support for her as soon as possible if no support is available from her family. (C)
6 Try to create better surroundings for the newborn by keeping in contact with the woman after discharge from the hospital through visits by regional public health nurses. (C)

CQ414: How may safety be assured in a 'midwife-managed care system'?

Answer

1 A 'Midwife-managed care system' is defined as that in which midwives care for pregnant and parturient women in the absence of an attending physician by adhering to institutional rules made by responsible physicians and midwives, with the assurance of a prompt switch from midwife care to physician care in the institution. (B)
2 Midwife care for pregnant and parturient women is low risk when performed according to institutional rules made by referring to Tables 1, 2, 3, and 4 in the 'midwife-managed care system'. (C)

CQ415-1: What precautions are needed before the use of uterotonics, including oxytocin, prostaglandin F2α (PGF2α), and prostaglandin E2 (PGE2)?

Answer

1 Confirm the indications and contraindications by referring to Tables 1 and 2. (A)
2 Obtain written informed consent. (B)
3 Perform cardiotocogram monitoring. (A)
4 Perform cardiotocogram monitoring for at least 1 h after the final PGE2 administration. (A)
5 Use an infusion pump while administering uterotonics i.v. (A)
6 Avoid the use of the following while administering a uterotonic drug: (A)
  (i) Hygroscopic mechanical dilators, such as laminaria rods.
  (ii) Sodium prasterone sulfate hydrate.
  (iii) Other uterotonics.
7 When successively using two uterotonics, administer an i.v. drug (or oral PGE2) at least 1 h after the final PGE2 administration (or discontinuation of an i.v. drug, respectively). (A)
8 When combining the use of a transcervical balloon catheter (TBC) and uterotonics, monitor the fetal heart rate pattern for at least 1 h after the use of the TBC, then initiate the uterotonic drug. (B)
9 Use 'the starting dose' shown in Tables 1, 2, and 3 when initiating the administration of a uterotonic drug. (A)

CQ415-2: What should one do while administering uterotonics?

Answer

1 Assess the blood pressure and pulse rate regularly at an interval of 2 h or less. (B)
2 Monitor the fetal heart rate and labor pains using a continuous cardiotocogram. (A)
3 Assess the cardiotocogram results every 5–15 min. (C)
4 Suspect 'excessive strong pains' in the presence of any of the following: (B)
  (i) Tachysystole (uterine contractions more than 5 times/10 min).
  (ii) Appearance of an abnormal fetal heart rate pattern of Level 3 or more (see CQ411).