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القسم او الفرع : النسائية والتوليد

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اسم المادة باللغة العربية :التوليد

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اسم المحاضرة الرابعة عشر باللغة العربية: الحمل الطويل

اسم المحاضرة الرابعة عشر باللغة الإنكليزية :Prolonged Pregnancy

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Prolonged Pregnancy

A pregnancy that has extended to or beyond 42 weeks' gestation (Pregnancies of 294 days duration or more) are defined as 'prolonged', post-term'.

Prolonged pregnancy is associated with an increase in perinatal mortality and morbidity in pregnancies which appear to be otherwise low risk.

Accurate dating remains essential for the correct diagnosis and should ideally involve a first-trimester ultrasound estimation of crown–rump length. Post-term pregnancy affects approximately 10% of all pregnancies.

Discussions about issues relating to prolonged pregnancy and interventions to prevent it often take place at 41 weeks' gestation.

Note:

24 weeks to 36+6 preterm
37 to 40 weeks due date
40 to 41+6 weeks post-date

Aetiology of prolonged pregnancy

The effects of anencephaly and of placental sulphatase deficiency on the duration are interesting examples of extreme post-term pregnancy but are unhelpful in elucidating the aetiology of the majority of cases of prolonged pregnancy.

There may be a genetic factor regulating the onset of labour. Prolonged pregnancy tends to repeat itself. a woman delivering post-term in her first pregnancy had a relative risk of a second post-term pregnancy of 2.2 and a woman with two post-term pregnancies had a 3.2-fold relative risk of a third post-term pregnancy.

There is a tendency for daughters of mothers who deliver post-term to have prolonged pregnancies but overall, these factors account for only a small proportion of the overall population attributable risk for post-term pregnancy. Male fetuses may be associated with a higher risk of prolonged pregnancy.

Low vaginal levels of fetal fibronectin at 39 weeks are predictive of an increased likelihood of post-term pregnancy. Transvaginal measurement of cervical length at 37 weeks predicts both prolonged pregnancy and failed induction. These observations suggest that a defect or delay in the remodelling of the cervix that takes place prior to successful initiation of labour, may cause prolonged pregnancy and may also be associated with some of the apparent increase in dystocia associated with prolonged pregnancy.

Prolonged pregnancy could result from variations in the corticotrophin releasing hormone (CRH) system during pregnancy, such as an alteration in the number or expression of myometrial receptor subtypes, altered signal-transduction mechanisms or increase in the capacity of CRH binding hormone protein to bind and inactivate CRH. Prospective, longitudinal studies have shown that women destined to deliver preterm tend to have a more rapid exponential rise in CRH in mid-pregnancy while women who go on to deliver post-term babies have a slower rate of rise.

Risks associated with prolonged pregnancy

Post-term pregnancy is associated with increased risks to both the fetus and the mother, including an increased risk of stillbirth and perinatal death, Cerebral palsy and an increased risk of prolonged labour and caesarean section. Dystocia, shoulder dystocia and obstetric trauma are all increased in post-term pregnancy.

A composite outcome of ‘severe neonatal complications’ including skull fracture and brachial plexus injuries, neonatal seizures, intracranial haemorrhage, neonatal sepsis, meconium aspiration syndrome, and respiratory distress syndrome.

Fetal surveillance and induction of labour are two strategies employed that may reduce the risk of adverse outcome. Unfortunately, there are **no known tests that can accurately predict fetal outcome post-term**; an ultrasound scan may give temporary reassurance if the amniotic fluid and fetal growth are normal. Similarly, a CTG should be performed at and after 42 weeks.

Antenatal tests in prolonged pregnancies

The evidence of increased perinatal mortality and morbidity in prolonged pregnancy compared with delivery at 39 or 40 weeks' gestation inevitably leads to the conclusion that some cases of prolonged pregnancy should be prevented by earlier delivery. It would seem logical to use screening tests to identify pregnancies that are destined to have an adverse outcome and to intervene selectively in these pregnancies.

The ideal test of fetal well-being in prolonged pregnancy would allow identification of all fetuses at risk of adverse outcome, at a stage where delivery would result in a universally good outcome. Pregnancies testing 'negative' in this test would be safe *in utero* for an interval of a few days until either delivery or a repeat test occurred and would eventually deliver with a good outcome. At present, no method of monitoring post-term pregnancy is backed up by strong evidence of effectiveness. There is some observational evidence that some pregnancies at risk of adverse outcome can be identified, but less evidence that prediction of the adverse outcome confers prevention.

Fetal movement counting

This is yet another test used commonly in the supervision of post-term pregnancies that is not backed up by firm evidence of efficacy.

The trials provide evidence that routine formal fetal movement counting does not reduce the incidence of intrauterine fetal death in late pregnancy. Routine counting results in more frequent reports of diminished fetal activity, with a greater use of other techniques of fetal assessment, more frequent admission to hospital and an increased rate of elective delivery.

It may be that fetal movement counting in post-term pregnancy will perform more effectively than it does in low-risk pregnancies. Women will be required to pay extra attention to fetal movements for less than 1 week in the majority of cases and will usually be attending at intervals of 3 days for other tests.

Cardiotocography

Antenatal cardiotocography (CTG) has been widely used for more than 20 years to monitor moderate to high risk pregnancies. Observational studies have reported very low rates of perinatal loss in high-risk pregnancies monitored in this way. Other studies found, the antenatal CTG has no significant effect on perinatal outcome or on interventions such as elective delivery. The poor performance of antenatal CTG in this series and in the randomized trials may relate to errors in interpretation or excessive intervals between tests. Numerical analysis using computerized calculations of the baseline rate and variability may reduce the potential for human error.

Ultrasound assessment of amniotic fluid

Ultrasound monitoring of amniotic fluid volume was first described in 1980 when a subjective classification of ‘normal’, ‘reduced’ or ‘absent’ amniotic fluid was described, based on the presence or absence of echo-free space between the fetal limbs and the fetal trunk or the uterine wall.

They described a semiquantitative method based on the largest vertical pool of amniotic fluid and used a 1-cm pool depth as the cut-off for intervention in a population of babies with suspected growth retardation. This was subsequently modified to 2 cm to improve detection of the growth retarded infant. Some found an increase in adverse outcomes in post-term pregnancies where the maximum pool depth was less than 3 cm. Others found that a maximum vertical pool of less than 2.7 cm was the best predictor of abnormal perinatal outcome.

They found that maximum pool depth performed better than amniotic index in predicting adverse outcomes in post-term pregnancies. The number of women found to have an abnormal AFI was significantly higher than the number found to have an abnormal maximum pool depth and more women underwent induction of labour in the AFI arm of the trial. There were no perinatal deaths and no statistically significant differences in perinatal outcome between the two groups.

Biophysical profile

Observational studies indicate that low biophysical scores identify babies at higher risk of adverse outcome. However, evidence of ability to predict adverse outcome must not be interpreted as proof of the ability to prevent these outcomes.

Trials comparing biophysical profile scoring (BPS) with other forms of antepartum fetal monitoring, yields insufficient data to show that the biophysical profile is better than any other form of fetal monitoring. Only one of these randomized controlled trials deals specifically with prolonged pregnancy. This trial compares monitoring of prolonged pregnancy using a modified biophysical profile score (consisting of computerized cardiotocography, AFI and the rest of the components of the conventional biophysical profile) with simple monitoring using cardiotocography and measurement of amniotic fluid depth. **The more complex method of monitoring post-term pregnancy is more likely to yield an abnormal result but does not improve pregnancy outcome as evidenced by umbilical cord pH.**

A study of biophysical profile scoring in the management of prolonged pregnancy showed that women who had abnormal biophysical profiles had significantly higher rates of neonatal morbidity, Caesarean section for fetal distress and meconium aspiration than the women with reassuring biophysical profiles.

Doppler velocimetry:

Two studies of umbilical artery Doppler velocimetry in prolonged pregnancy indicate that it is of no benefit.

Management of prolonged pregnancy

Ultrasound to establish accurate gestational age:

The first step towards managing prolonged pregnancy is to reduce the number of cases of prolonged pregnancy by providing ultrasound verification of gestational age for all pregnancies. A recent trial of first versus second trimester ultrasound showed a lower rate of post-term pregnancy in pregnancies dated by first trimester ultrasound. Another Trial showed that first trimester ultrasound determination of gestational age by crown– rump length as opposed to LMP reduces the apparent incidence of pregnancies greater than 41 weeks from 22.1 to 8.2%.

Induction of labour for prolonged pregnancy:

Obstetricians have responded in various ways to the apparently increased perinatal mortality and morbidity associated with prolonged pregnancy.

Management options include induction at term to prevent pregnancies reaching 42 weeks, routine induction at 42 weeks or shortly before and selective induction at 42 weeks in cases identified by tests as being at risk of adverse outcome.

Fortunately, the benefits and hazards of some of these strategies have been evaluated in randomized controlled trials. Trials comparing elective induction at term versus expectant management, and elective induction after 41 weeks versus monitoring of post-term pregnancies.

The main outcomes of interest are those already identified in the analysis of post-term pregnancy risks – perinatal mortality, neonatal encephalopathy, meconium-stained amniotic fluid, Caesarean section. In addition, evidence was sought relating to the effect of the various management options on maternal satisfaction.

Induction at or before 40 weeks

Pre-emptive induction of labour, where women with uncomplicated pregnancies were routinely offered induction at or before 40 weeks, was practiced in some obstetric units in some countries. The trials compare a policy of ‘routine’ induction at 39 weeks, or 40 weeks, with either ‘expectant’ management of an indefinite duration or expectant management until 42 weeks’ gestation. These trials reveal no evidence of any major benefit or risk to ‘routine’ induction at 40 weeks. Two perinatal deaths of normally formed babies occurred in the expectant arm of the set trials and none in the induction arm. Obviously, this is not a significant difference.

There was no effect on Caesarean section, instrumental delivery or use of analgesia in labour. Not surprisingly, given the relationship between gestational age and meconium staining of the amniotic fluid in labour, induction around 40 weeks reduces the incidence of meconium staining in labour. Unfortunately, the authors of these trials did not address the important question of women's views of induction of labour at this stage of pregnancy. The authors of these trials missed a golden opportunity in failing to measure women's satisfaction with their care.

'Routine' induction of labour at 40 weeks would no longer be considered a realistic option for the prevention of post-term pregnancy. The number of inductions at 40 weeks required to prevent an adverse outcome at 41 or 42 weeks would be excessive and intervention at this level would be unlikely to be welcomed by women, obstetricians or midwives.

Induction of labour at 41 weeks

The Royal College of Obstetricians and Gynaecologists (RCOG) issued a clinical guideline on induction of labour in 2001, which included recommendations on management of prolonged pregnancy. These recommendations were:

• An ultrasound to confirm gestation should be offered prior to 20 weeks, as this reduces the need for induction for perceived post-term pregnancy.

• Women with uncomplicated pregnancies should be offered induction of labour beyond 41 weeks.

• From 42 weeks, women who decline induction of labour should be offered increased antenatal monitoring, consisting of a twice weekly CTG and ultrasound estimation of maximum amniotic pool depth.

Women have a right to be informed of the small increase in risk associated with continuing the pregnancy after 41 weeks. Many showed that pregnant women are much more risk averse than are their caregivers. Following a vaginal examination, induction of labour should be offered on a date after 41 weeks that is acceptable to both the woman’s wishes and the hospital resources. The vaginal examination could be accompanied by sweeping of the membranes, provided women are warned about the discomfort associated with this and are agreeable to proceed.

Membrane sweeping reduces the need for ‘formal’ induction of labour. The vaginal examination allows the obstetrician to inform the woman of the likely ease and success of induction of labour. For women who have previously delivered vaginally and for women with a favourable cervix, induction of labour is unlikely to be a difficult process. Women who wish to avoid induction of labour should be supported but should be made aware of the lack of reliability of antenatal tests and the lack of evidence that avoiding induction of labour reduces the risk of Caesarean section. As induction of labour with prostaglandins is associated with an increased risk of uterine scar dehiscence compared with a spontaneous onset of labour, women who have had a previous Caesarean section, especially those with no vaginal deliveries require carefully individualized management at 41 weeks’ gestation.

When counselling the parents regarding waiting for labour to start naturally after 42 weeks, it is important that the woman is aware that no test can guarantee the safety of her baby, and that perinatal mortality is increased (at least twofold) beyond 42 weeks. A labour induced post-term is more likely to require caesarean section; this may partly be due to the reluctance of the uterus to contract properly, and the possible compromise of the baby leading to abnormal CTG.

Thank you