Management of prolonged pregnancy


Record Status
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Citation

Authors' objectives
Four key research questions were addressed:

1. What are the test characteristics (reliability, sensitivity, specificity, predictive values) and costs of measures used in the management of prolonged pregnancy to: a. Assess risks to the fetus and mother of prolonged pregnancy? b. Assess the likelihood of a successful induction of labor?

2. What is the direct evidence comparing the benefits, risks, and costs of planned induction versus expectant management at various gestational ages?

3. What are the benefits, risks, and costs of currently available interventions for the induction of labor?

4. Are the epidemiology and outcomes of prolonged pregnancy different for women in different ethnic groups, socioeconomic groups, or age groups (i.e., adolescents)?

Authors' conclusions
1. What are the test characteristics (reliability, sensitivity, specificity, predictive values) and costs of measures used in the management of prolonged pregnancy to (a) assess risks to the fetus and mother of prolonged pregnancy, and (b) assess the likelihood of a successful induction of labor?

Consistently, tests for the assessment of risks to the fetus have lower sensitivity than specificity but higher negative predictive values than positive predictive values. This implies that the low risk of adverse outcomes is the main "driver" of high negative predictive values, and if sensitivity and specificity do not change appreciably with gestational age, that negative predictive value -- the likelihood that a fetus with a normal test will have a normal outcome -- decreases with advancing gestational age. Thus, false negative results will increase with advancing gestational age.

The most sensitive tests to assess the risks to the fetus of prolonged pregnancy appear to be combinations of fetal heart rate monitoring and ultrasonographic measurement of amniotic fluid volume. Direct comparison of test results across studies is difficult because of differences in patient populations and reference standards used. Published data on costs were not available.

Both ultrasound and clinical examination can be reasonably sensitive at identifying macrosomic fetuses when macrosomia is defined as greater than 4,000 grams. However, prediction of birthweights greater than 4,500 grams, the clinically more relevant threshold, is less accurate, with sensitivity ranges from 14-99 percent. There is no evidence that early detection of macrosomic infants in prolonged pregnancy improves maternal or neonatal outcomes, and modeling studies suggest that the use of ultrasound to screen for macrosomia is not cost effective.

The components of the cervical examination used to determine the Bishop score have significant inter- and intraobserver variability. The uncertainty created by this variability affects the ability of the examination to discriminate between patients likely to have a successful induction and those likely to fail.
2. What is the direct evidence comparing the benefits, risks, and costs of planned induction versus expectant management at various gestational ages?

Although individual randomized trials do not show significant differences in perinatal mortality between women electively induced at specific gestational ages and women followed with antepartum testing, pooled data show a significant reduction in perinatal mortality in women electively induced after 41 weeks compared with women managed with antepartum testing. At least 500 inductions are needed to prevent one perinatal death. Cesarean section rates do not appear to differ between electively induced and expectantly managed women, either overall or in specific subgroups. In some groups, elective induction actually decreases the overall risk of cesarean section. Other maternal and perinatal outcomes do not appear to differ between groups.

Data on patient preferences for management options are lacking. Analysis of costs in the largest trial suggested that costs were reduced with elective induction; more detailed analysis based on currently used interventions and current obstetric management is needed.

3. What are the benefits, risks, and costs of currently available interventions for the induction of labor?

The majority of studies of interventions for induction of labor involved women induced for a variety of indications at a wide range of gestational ages. Whether summary results from these groups are applicable to women with prolonged pregnancy is unclear.

Sweeping or “stripping” of the membranes at 38-40 weeks consistently promotes spontaneous labor and reduces the number of women requiring induction at 41 or 42 weeks.

Many studies of agents for induction are powered based on detecting differences in time to induction or differences in the proportion of women delivered within a predetermined period of time. Most do not have sufficient power to detect differences in categorical outcomes, such as cesarean section rates and adverse maternal or perinatal outcomes.

There is a consistent pattern of tradeoffs between efficacy of interventions for induction, especially as measured by time to induction or delivery within a predetermined period of time, and uterine hyperactivity, with possible increased risks of surrogate markers of fetal compromise, such as nonreassuring fetal heart rate tracings. Misoprostol appears most consistently to result in vaginal delivery within a predefined time period; however, it also appears most likely to result in very frequent uterine contractions, which may lead to fetal heart rate abnormalities.

Data are lacking on both medical and nonmedical costs of different intervention strategies.

4. Are the epidemiology and outcomes of prolonged pregnancy different for women in different ethnic groups, different socioeconomic groups, or in adolescent women?

We identified no published literature that showed differences among important ethnic, socioeconomic, or other subgroups.

Review of administrative data suggests that the proportion of all pregnancies extending beyond 42 weeks is similar among all racial and ethnic groups. Black women are more likely to have low birthweight infants after 42 weeks than other groups, a finding similar to observations at other gestational ages. Confirmation of these observations with more detailed data sets is needed.

Currently available literature on interventions in prolonged gestation does not address issues such as access to care or practical difficulties (for example, transportation or arranging child care) which might affect effectiveness (as opposed to efficacy) in different populations.

Project page URL
http://www.ahrq.gov/clinic/epcsums/prolongsum.htm

URL for DARE abstract
Indexing Status
Subject indexing assigned by CRD

MeSH
Female; Pregnancy; Pregnancy Complications; Pregnancy, Prolonged

Language Published
English

Country of organisation
United States

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AccessionNumber
32002000429

Date bibliographic record published
13/02/2003

Date abstract record published
13/02/2003