Management of the Postdates Pregnancy

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INTRODUCTION

There is a continuing controversy regarding the management of the pregnant patient who has not delivered by her "due date". Induction of the undelivered post-term patient, rather than allowing spontaneous labor, places the patient at higher risk for failed induction, cesarean delivery, and its attendant complications. This issue of Clinical Discussions addresses the management of the "postdates" patient.

Definition

Postdates is traditionally defined as completing 42 weeks of gestation, or 294 days of pregnancy beyond the LMP (last menstrual period). Post term is also occasionally used to describe postdatism. The term "post maturity" is used to describe the features of a neonate who appears to have been in-utero longer than 42 weeks of gestation. These features were originally described by Clifford (1954) and consist of 3 stages:

- 1 - wrinkled, peeling skin, with thin body
- 2 - stage 1 and fetal distress, meconium present
- 3 - stage 1 & 2, findings with meconium stained skin or nails

The Clifford criteria has been more recently modified to describe dysmaturity, which is defined as mild -only skin and nail findings, or advanced -skin, nail findings and loss of subcutaneous fat with meconium staining.

Dysmaturity is seen in 20 - 43% of postdates pregnancies. At 41 - 43 weeks of pregnancy the prevalence of dysmaturity is 2 - 3%, and at 44 - 45 weeks of pregnancy dysmaturity prevalence is as high as 75%.

The incidence of postdates ranges from 3 - 12% of all pregnancies. If the pregnancy is dated using ultrasound criteria, the incidence of post-dates is lower and ranges from 3 - 6%. Only 1 - 4% of all pregnancies continue to 43 weeks.

Management

What is not controversial regarding the management of the postdates patient is:

- Do not allow any pregnancy with other high risk factors to go postdates - perinatal morbidity is too high. the rate is twice as high in the high-risk patient as the low-risk patient. Eden (1988) found the morbidity rate five times higher in the hypertensive and diabetic patient than the uncomplicated low-risk patient.
- If the post-term patient has a favorable cervix (Bishop's score $\geq 6$, then induction of labor is the preferred management.

What is controversial is what to do with postdates pregnancy with an unfavorable cervix: to induce or not to induce labor? Grenados (1984) surveyed 80 perinatal centers and found that 49% would managed the patient conservatively if fetal distress was not present and 49% would induce labor or perform a cesarean section.

To answer the question of whether to induce, the risk of prolonging the pregnancy (conservative management) must be weighed against the risk of labor induction (active management). To determine whether a patient is a candidate for conservative management, it is crucial to determine whether the fetus is at risk, what test of fetal surveillance is best, when should testing begin, and how often should testing be performed.

Fetal Surveillance
Fetal risks (mortality and morbidity) of prolonged pregnancy have been significantly reduced after the availability of antenatal testing. McClure (1958) in England studied 17,000 deliveries and found the perinatal mortality rate ranged from 10/1000 at 40 weeks gestation to 17/1000 at 42 weeks gestation on up to 50/1000 at 45 weeks gestation. With the advent of antenatal testing which became available in the late 1970's, Eden (1987) demonstrated a significant decrease in the perinatal mortality rate; at 40 weeks gestation - 1.5/1000, 43 weeks gestation - 2.0 /1000, and at 44 weeks gestation - 6.9/1000.

There is morbidity associated with conservative management of postdates pregnancy. The fetus is at risk for meconium staining of amniotic fluid (15 - 20%), meconium fluid in the trachea/larynx, which requires aggressive airway management, and meconium aspiration syndrome, which has a very high mortality rate. Other complications include oligohydramnios, dysmaturity and macrosomia (prevalence of 2 -10%). Older studies suggested that postdates pregnancies accounted for a high proportion of infants with cerebral palsy, and children with learning disabilities. Fortunately, more recent studies (Shime, 1988) do not support this concept except in pregnancies complicated by asphyxia or meconium aspiration syndrome.

There are several fetal surveillance tests available which can reduce the morbidity and mortality associated with the postdates pregnancy. Briefly they are:

**Nonstress Test (NST)**
- reactive - 2 accelerations (15 beats above baseline lasting 15 seconds) in 20 minutes
- nonreactive - after 40 minutes no accelerations

**Contraction stress test (CST)**
- IV oxytocin or nipple stimulation until patient has 3 contractions in 10 minutes negative - no decelerations positive - repetitive late decelerations or variable decelerations suspicious - isolated late or variable decelerations

**Biophysical profile (BPP)**
- reactive NST, fetal breathing, extension - flexion, gross body movement, 2 cm X 2 cm pocket; 2 points for the presence of each variable

**Doppler**
- multiple studies assessing almost any vessel (Arduini, 1991, Pearce, 1991, Johnstone, 1993) suggest that Doppler is not helpful even using absent end diastolic flow. ACOG continues to consider Doppler investigational

**Fetal "Kick Counts"**
- various protocols are described, and well controlled studies support its use.

**What's the best test and when should testing begin?**

Although Eden's (1982) study is greater than 15 years old it is one of the few which looked at the issue of which surveillance scheme is best for reducing perinatal mortality and morbidity. The study compared 3 testing schemes using 583 postdates patients. He compared: a. weekly NST/CST, b. semiweekly NST/BPP, and c. semiweekly NST/weekly amniotic fluid volume (AFV) assessment. The lowest perinatal mortality and morbidity was seen in the scheme in which semiweekly NST/weekly AFV were performed. However the intervention rate was the highest in this group. This implies that a higher intervention rate is acceptable to obtain a low PNM. Other studies (Freeman, 1981) have demonstrated similarly low perinatal morbidity and mortality rates using the CST semiweekly.

Regarding the issue of "when to begin testing" several studies have compared initiating fetal surveillance at 40, 41, or 42 weeks of gestation. The results reveal the same morbidity (oligohydramnios, cesarean section for fetal distress, NICU admission) in patients with testing initiated at 41 or 42 weeks. Therefore if testing is begun too early (i.e 40 or 41 weeks gestation) a
patient may receive 3 - 4 additional tests without reducing the risk to the fetus. If testing is delayed until 42 weeks, many patients will have already presented in spontaneous labor. By 43 weeks gestation, 70 - 90% of postdates patients will have already labored and delivered.

**Induction vs. Surveillance**

An evaluation of randomized prospective clinical trials give answers to important questions regarding the safety of surveillance for the fetus specifically addressing the issue of meconium staining, meconium aspiration syndrome, dysmaturity, macrosomia and length of hospital stay for the infant. Additionally assessment of the safety of induction for the mother regarding issue of cesarean section rate, infectious morbidity, and length of hospital stay becomes equally important.

Five randomized trials have addressed this issue:

- Cardozo et al. 1986 (England) 402 patients, good dates, fluid check, NST every other day. induction - PGE2 3mg pessary, AROM, +/- oxytocin, no limit on maximum gestational age
- Augensen et al. 1987 (California) 214 patients, all nulliparous, Bishop same, NST q 3 -4 day, induced by 43 weeks, induction - oxytocin, AROM, induced at 43 2/7 weeks
- Dyson et al 1987 (California) 302 patients, NST semiweekly, fluid check q weekly until 42 weeks then semiweekly, induction - PGE2 gel intravaginal (3mg) or intracervical (0.5mg), no limit on maximum gestational age
- NIH collaborative, 1991 (5 US centers) 349 patients, NST, fluid check semiweekly, induction with PGE2 (0.5mg) intracervical gel 1 dose only, +/- oxytocin, induced at 44 weeks
- Hannah et a 1992 (Canadian multicenter trial) 3407 patients, NST 3 times per week, AFV check 2-3 X/week, induction within 4 days of randomization, induction with gel in induction group, induction by oxytocin in surveillance group

The conclusion drawn from the evaluation of a total of 4869 patients suggest that there is no difference in the mortality or morbidity between routine induction and conservative management of the postdates patient. In the Hannah study the cesarean section rate was significantly higher in the surveillance group vs. induction group (24% vs. 21%). The NIH study was discontinued because morbidity and mortality was so low. The cost of either clinical pathway has yet to be evaluated.

**Recommendations for management of the postdates pregnancy**

- At 41.5 weeks begin antenatal testing (NST and amniotic fluid index - AFI), cervical exam
- If any testing is abnormal (AFI \(\leq 5.0\) cm, NST with any decelerations) induce
- If cervix is favorable (can rupture membranes or Bishops \(\geq 6\)) induce
- If macrosomia is suspected with EFW \(\geq 4500\) grams either induce or obtain ultrasound to confirm and induce
- Remaining patients are followed semiweekly with NST, fluid check, and cervical exam and if any of the above occur the patient is induced
- If not in labor by 43 weeks induce
- All patients are given kick count instructions to perform daily.

**Disclosures:**

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