Complications of Postdate pregnancy: A prolonged pregnancy is commonly defined as a pregnancy that has extended to or beyond 42 weeks of gestation (294 days, or estimated date of delivery [EDD] plus 14 days). It is not synonymous with post-maturity, which is a clinical syndrome thought to be a consequence of a failing placental function. Approximately 5 to 10 percent of all pregnancies continue to at least 42 weeks of gestation. Most cases of postdate pregnancies result from a prolongation of gestation. Other cases result from inaccurate dating criteria. Although the last menstrual period (LMP) has been traditionally used to calculate the EDD, many inaccuracies exist using this method in women who have irregular cycles, have been on recent hormonal birth control, or who have first trimester bleeding. Ultrasonographic dating early in pregnancy can improve the reliability of the EDD, reduce the incidence of pregnancies diagnosed as post-term and minimize unnecessary interventions.

So the risk of adverse sequelae may be reduced by making an accurate assessment of gestational age and diagnosis of post-term gestation, as well as recognition and management of risk factors. Risk factors for postdate pregnancy may include primiparity and previous post-term pregnancies. Placental sulfatase deficiency, fetal anencephaly, and male sex have been associated with prolongation of pregnancies, and genetic predisposition also may play a role.

Post-term pregnancies are at increased risk for numerous adverse outcomes including both maternal and perinatal complications (Table 1). The main argument against a policy of routine induction of labor around 41st week has been that induction increases the rate of cesarean delivery without decreasing maternal and/or neonatal morbidity. Some of the studies that failed to show a reduction in fetal/neonatal morbidity were diluted by poorly dated pregnancies that were not necessarily postterm. In addition, the potential for increasing the risk for cesarean delivery with a failed induction is far less likely in the era of safe and effective cervical ripening agents.

A retrospective review of 18,055 singleton pregnancies, has found no differences in cesarean delivery rates in women entering spontaneous labor and those who had induced labor. Moreover, two prospective randomized studies have found no increase in the rate of cesarean delivery in patients who were randomized to routine induction of labor. In fact, more cesarean deliveries were performed in the noninduction groups, and the most frequent indication was fetal distress. The neonatal outcomes were similar in both the routine induction and noninduction groups. All 2 trials concluded that the incidence of adverse perinatal outcomes in low-risk pregnancies at or after 41 weeks' gestation is very low with either induction or expectant management.

Further data suggest that induction may actually be more beneficial than expectant management in patients at 41 weeks of gestation. A study has shown that the policy of inducing labour at 41 weeks and 4 days (291 days of gestation) in uncomplicated pregnancies
is justified because when the gestational age is more than 41 weeks and 4 days, the incidence of meconium staining of amniotic fluid and evidence of uteroplacental insufficiency increases significantly. A meta-analysis reviewed 11 trials and concluded that a policy of routine induction had a lower rate of perinatal morbidity and cesarean delivery, demonstrating both fetal and maternal benefit compared to expectant management. In addition, a recent systematic review with meta-analysis concluded that a policy of labor induction at 41 weeks’ gestation for otherwise uncomplicated singleton pregnancies reduces cesarean delivery rates without compromising perinatal outcomes. Furthermore, the option of elective cesarean section should be considered, particularly with an unfavorable cervix, advanced maternal age. The estimation of fetal weight does not have predictive role since the poor accuracy of routine fetal ultrasound, at term.

In summary, routine induction at 41 weeks’ gestation does not increase the cesarean delivery rate, and may decrease it, without negatively affecting perinatal morbidity or mortality. In fact, there may be both maternal and neonatal benefits to a policy of routine induction of labor in well-dated low-risk pregnancies at 41 weeks’ gestation. However, a policy of routine induction at 40 weeks’ has few benefits.

ACOG has stated that it is reasonable to inducing labor in post-term pregnancies in which the cervix is favorable because the risk of failed induction and subsequent cesarean delivery is low. In low-risk post-term women with unfavourable cervices, both labour induction and expectant management are associated with low complications rates and good perinatal outcomes; there does appear to be a slight advantage to labour induction using cervical-ripening agents. If there is evidence of fetal compromise or oligohydramnios, delivery should be affected and prostaglandin can be used in post-term pregnancies to promote cervical ripening and induce labour.

Guidelines, however, often differ from clinical practice. A study has shown that although most contemporary practicing obstetricians manage post-term pregnancies according to recent ACOG educational materials with regard to antenatal fetal surveillance and methods of induction, the majority induce patients with singleton post-term pregnancies at 41 weeks gestation rather than waiting until 42 weeks gestation. Expectant Management: Antepartum fetal surveillance: Despite a lack of evidence that monitoring improves perinatal outcome, when expectant management is chosen, fetal monitoring must be performed. ACOG states that it is reasonable to begin antepartum testing after 41 weeks (287 days) of gestation, although many obstetric care providers will start fetal testing around 280 days of gestation, being women further examined at 287-289 and 291 days of gestation. Low-risk women are generally monitored with maternal measurement of fetal movement, Non Stress Test (NST) and the evaluation of Amniotic Fluid Index (AFI) which is obtained with the summation of the largest vertical pocket in 4 quadrants (Table 2). Other options include modified biophysical profile (BPP) (a combination of NST and AFI), full BPP (NST, AFI, fetal tone, movement and breathing), Doppler velocimetry of umbilical artery and the computerized fetal heart rate analysis whose diagnostic ability has been recently ascertained in the identification of patients at risk of fetal distress in labour.

<table>
<thead>
<tr>
<th>Result</th>
<th>Criteria</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reactive</td>
<td>In a 20-minute period, two or more fetal heart rate accelerations of at least 15 beats per minute above the baseline heart rate. Each acceleration lasts at least 15 seconds. Fetal movement may or may not be discernible by the patient.</td>
</tr>
<tr>
<td>Non reactive</td>
<td>No fetal heart rate accelerations over a 40-minute period.</td>
</tr>
</tbody>
</table>

Table 2: Nonstress Test Criteria
Ultrasound Estimates of Amniotic Fluid Volume

<table>
<thead>
<tr>
<th>Measurement</th>
<th>Oligohydramnios</th>
</tr>
</thead>
<tbody>
<tr>
<td>Amniotic fluid index</td>
<td>0 to 5 cm</td>
</tr>
<tr>
<td>Single deepest pocket</td>
<td>0 to 2 cm</td>
</tr>
<tr>
<td>Two-diameter pocket</td>
<td>0 to 15 cm</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Normal</th>
<th>Polyhydramnios</th>
</tr>
</thead>
<tbody>
<tr>
<td>5.1 to 25 cm</td>
<td>&gt;25 cm</td>
</tr>
<tr>
<td>2.1 to 8 cm</td>
<td>&gt;8 cm</td>
</tr>
<tr>
<td>15.1 to 50 cm</td>
<td>&gt;50 cm</td>
</tr>
</tbody>
</table>

Active Management: induction of labour: Postdate pregnancy is the single and more common cause of induction of labour. In addition to Oxytocin, there are some non-pharmacological methods used to induce labour, including: * Stripping the membranes * Cervix mechanical dilation * Manual nipple stimulation * Amniotomy. Membrane stripping has poor efficacy and mechanical dilatation with Foley catheter as well as nipple stimulation are scarcely utilized despite some proof of efficacy. Amniotomy is, on the contrary, well indicated at a significant cervical dilatation (at least >3cm), being a manoeuvre that should be done before Oxytocin infusion. However, the success of induction is strictly dependent on cervical ripening. Therefore, before actual induction is begun, patients should undergo Bishop Scoring in order to assess the readiness of the cervix using the 10-point system gwhich grade 5 factors: dilation; degree of effacement; application of the presenting part; consistency of cervix; cervical position. In women presenting with very unfavourable cervix (Bishop<5), Prostaglandins are the best agents actually licensed for ripening the cervix and Dinoprostone, a prostaglandin E analogue, has proven to induce both cervical softening and shortening, often activating labour itself. The availability of Prostaglandins in the last 15-20 years made possible induction of labour then otherwise would have an high rate of failure, with the sole use of oxytocin. According to recent studies, the pre-induction cervical ripening with dinoprostone slow-release vaginal insert is associated with a very high rate of women undergoing a vaginal delivery within 24 hours with a shorter admission compared to 0.5 mg dinoprostone intra-cervical gel (Fig.1). Another prostaglandin has been shown to be an effective agent for cervical ripening and labour induction, i.e., Misoprostol. A recent study has shown that Misoprostol vaginal inserts successfully induced labour in pregnant parous women at term. However, Misoprostol has no indication for such employment: because it is an off-label drug, it should be managed with caution.

Conclusions: It is now well assessed that pregnancy prolongation beyond 42 weeks is an hazard for the foetus. The advent of perinatal medicine and its access by the majority of women then reduced the rate of pregnancy reaching such a high gestational age. In our region, Emilia-Romagna, an industrialized country in the north of Italy, the possibility for a correct dating of pregnancy is available to everybody and the rate of post-date in 2005 was...
2.4%. I would suggest that the rate of post-date become a marker of quality of a Perinatal Unit, considering every delivery occurring after 294 days an “adverse outcome”. As far as policies, however, nothing could be concluded on the two contrasting attitudes, i.e. expectant management till 290-92 days or elective induction of labour at 287th day. Since the evidence based medicine approach do not allow any definite conclusion in this respect, the choice on when to induce should be balanced also considering the women orientation and the anxiety of the dyad patient-obstetrician.

Certainly, prostaglandins are by far the best pharmacological tool for managing the induction of labour. They provide a high rate of success and few adverse events have been reported with their correct use, also in high-risk categories like women already having one hysterotomy. Other agents are under evaluation in order to find a “true” cervical ripener, i.e. a substance that allow collagen disaggregation, increases water and hyaluronic acid content modifying the anatomic structure without affecting miometrial contractility. Nitric oxide donors would have such a profile and their use together with classical prostaglandins is now under clinical evaluation, even with contrasting results.

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2. FIGO, FIGO news: List of gynecological and obstetrical terms and definitions. Int J Gynec Obstet, 1976; 14: 570-6
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