Post-term pregnancies: Is it the time to reassess the risks?

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Abstract

Historically post-term pregnancy (42 weeks – 294 days) is considered a condition of increased risk for the fetus, the mother and the newborn. Therefore the clinical management is strongly influenced by this belief. Actually two managements are recommended: routine induction of labor before 42 weeks or expectant management under close control. As the reason for choosing routine induction is principally based on the assumption of a significantly increased risk it seems wise to reassess the risks on the basis of the available studies published after 1990 as great changes and improvements in gestational age assessment, fetal testing and neonatal care have been introduced after that time. Actually the conclusions are different. By examining epidemiological, retrospective and prospective recent studies the results are conflicting and the fetal risk (after exclusion of other factors like IUGR or malformations) looks much lower than reported. Large fetal size has a protective effect for the fetus and the neonate but has an adverse effect on maternal complications. The implications are discussed.

Key words: post-term, stillbirth, risk, IUGR, induction

Introduction

Historically postterm (PT) pregnancies (lasting more than 42 weeks – 294 days) are considered as a condition of increased risk for the fetus, the mother and the newborn. This concept is reported also in 2 documents recently produced by respected Institutions [1, 2]. If this belief is considered as true the logical answer should be to deliver before the gestational age of increased risk is reached. Therefore it is fundamental to assess if, in otherwise uncomplicated PT pregnancies, there is really an increased risk requiring a planned delivery.

Fetal risk

It is reported and accepted that the risk of stillbirths increases as the gestational age (GA) reaches and proceeds beyond 41 weeks. This belief is mainly based on the data offered by 4 studies [3, 4, 5, 6]. They have all been conducted on birth registers covering long periods of time during which great changes and improvements have been introduced in fetal testing. Another critical point is represented by the fact that the GA assessment was mainly based on the last menstrual period (LMP) that is largely unprecise. Moreover these studies are just presenting the rate of stillbirth per week GA but the characteristics of the deaths are not presented in detail. Therefore they just describe “what” happened but not “why and how”. Other studies on the contrary have pointed out the fact that after exclusion of malformations and growth restriction (IUGR) the risk of stillbirth in uncomplicated postterm pregnancy is, if any, very low [7-9]. In particular IUGR plays a major role as independent etiological factor for stillbirths and neonatal deaths in PT pregnancies [10]. This fact is confirmed by examining a recent paper [11]. This is a prospective population based study conducted from 1989 to 1999 comprising 17 493 women that delivered after 37 completed weeks GA. The outcome of the 1336 PT pregnancies (7.6%) has been compared to that of the cases that delivered before 41 weeks. The Authors found an increased perinatal mortality (PM) at the borderline of significance and report in detail the 7 cases of death that occurred in PT. 4 were stillbirths. In 2 cases severe IUGR was present, in 1 gestational diabetes affected the mother and the fetal weight was 5100 g. In 2 cases intrapartum death occurred (rarely occurring today) and in one of the two again severe IUGR was associated. In 1 case neonatal death occurred. The newborn was affected by a congenital malformation (coarctatio aorta). It is easy to believe that by prenatal recognition and proper management 6 of these deaths were potentially avoidable. Therefore only 1 of the 7 reported cases of PM can be attributed solely to PT pregnancy with an incidence of adverse outcome much lower than in the term group. Interesting to note that 54 pregnancies continued until 43 weeks under close surveillance and no perinatal deaths were observed. Another study conducted in the period from
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1990 to 2000 on the birth registry of Kuopio Hospital (Finland) with similar characteristics to the previous study but excluding fetal abnormalities showed a stillborn rate in the postterm group four times inferior to that observed in the control group [12]. In our experience in a study group of 511 uncomplicated PT pregnancies no PM cases have been recorded [13]. Other observational studies offer the same conclusions. These results are only apparently conflicting. In fact the possible difference in perinatal outcome is principally the consequence of a careful assessment of maternal and fetal possible complications allowing only true “uncomplicated” pregnancies to proceed beyond term. The supposed increased rate of stillbirths in PT pregnancies is attributed to “senescence” or “aging” of the placenta that induces fetal hypoxaemia. This concept is in contrast with some evidences.

1. In uncomplicated PT pregnancies the fetus still grows. The prevalence of birthweight (BW) > 4000 g is 22.50% and that of macrosomic (BW > 4500) is 4.11%. The difference with newborns delivered between 37 and 41 weeks is statistically significant (p < 0.01). In the last group the prevalence of BW > 4000 g was 8.54% and of the macrosomic 1.09 [13]. The progression of fetal growth in uncomplicated pregnancies is a strong evidence of a normal placental function.

2. Fetal heart rate variability assessed by computerized CTG is a very sensible and specific indicator of chronic fetal hypoxaemia (CFH) and acidaemia. It shows a trend to reduction from 41 weeks to 42 and 43 weeks [14]. As this observation was not associated with increased PM or morbidity, it has been concluded that this trend is expression of fetal maturation and not of placental malfunction inducing fetal hypoxaemia.

3. In uncomplicated postterm pregnancies the Doppler Velocity waveform (DVWF) in the umbilical arteries, fetal thoracic descending aorta the common charotid artery and the uterine artery does not show significant changes [15]. These findings exclude the occurrence of placental functional impairment consequence of prolongation of the pregnancy per se.

4. Elevated Nucleated Red Blood Cells count (NRBC) is associated with CFH. In uncomplicated PT pregnancies the NRBC is not increased [16].

Therefore, according to the results of these studies, a pathophysiological background for an increased fetal risk consequence of the prolongation of the pregnancy per se is lacking.

In conclusion if our task is to assess the true fetal risk of PT pregnancies, as a guide for the management, it is necessary to analyze in detail the possible causes of the adverse outcome. Only after exclusion of maternal and/or fetal complications the poor outcome can be attributed to PT per se. In this way, by prospective studies, it will be possible to assess precisely the risk of PT as an isolated and only cause of the stillbirth.

At the moment clear unequivocal evidence of an increase risk in uncomplicated PT pregnancy is not available.

Maternal risks

Women delivering PT as compared to those delivering at term have an increased risk of complications. They are mainly represented by: dystocia in labor, postpartum hemorrhage, perineal injuries and caesarean section (CS). The problem of maternal anxiety is controversial.

Anyway it is clear that these complications are mainly the consequence of the larger fetal size commonly observed in uncomplicated PT pregnancies.

As far as CS rate is concerned it is unclear if this is only due to the larger fetal size or is the consequence of the inductions.

Neonatal risks

Studies considering neonatal mortality and morbidity in PT birth are generally indicating an increased risk as compared with newborns born at term [17] but there is no complete agreement as other studies have documented no increased risk [18].

The most commonly reported complications are: Meconium passage, meconium aspiration, low Apgar score, acidaemia, admission to NICU, trauma (clavicula fracture, shoulder dystocia, Erb’s Palsy).

Again, as it was in the case of fetal risks, the studies report what happened but not why, without distinction between uncomplicated PT pregnancies and cases where other conditions (fetal and/or maternal) were potentially responsible of the neonatal complication.

As birth trauma is positively correlated with the BW it is clear that in PT pregnancies an increased rate of traumatic deliveries can be expected.

On the contrary it is necessary to discuss two aspects: 1. Meconium passage and aspiration; 2. The role of fetal growth restriction.

1. Meconium passage and meconium aspiration.

A) Meconium passage cannot be considered a com-
application as it is noted in about 12% of all deliveries [19]. The incidence increases with GA and is considered an expression of fetal gut maturation. In some cases meconium passage can be the consequence of fetal hypoxaemia, a condition observable in 30% of IUGR fetuses.

B) Meconium aspiration syndrome (MAS).

MAS is a severe neonatal complication as in this condition 4% of infants die. It occurs usually in utero, before or during labor, and is the consequence of fetal hypoxaemia, chronic or acute.

2. As for the stillbirths IUGR and its frequent association with CFH is an important independent factor for neonatal mortality and morbidity.

As a consequence it is necessary, for estimating the true incidence of adverse neonatal outcome due solely to PT, to consider only cases without any other complication, maternal or fetal.

Management

This premise was necessary in order to discuss on a rational basis the management of PT pregnancies. Today, according to the ACOG recommendation [1], PT pregnancies can either undergo induction or be managed expectantly. In both conditions the outcome is reported to be good.

First of all it should be stressed that routine induction in the 41th week cannot be considered a management of PT pregnancies as the chronological term (42 weeks) has not been reached. Therefore it can only be considered a method for preventing PT. In other words this is a typical “risk approach”. In order to accept this approach it is necessary:

1. That the risk of adverse outcome in PT, assessed after exclusion of confounding variables, is significantly increased.

2. To evaluate if the possible benefit of the procedure (routine induction) overcomes the risks related to the procedure itself.

As already described the fetal/neonatal complications in absolute numbers in “uncomplicated” PT pregnancies is, if any, very low. The most common complications (malformations and IUGR) can be detected by using modern fetal testing and in this case the management should be performed according to the condition that is observed. Therefore routine induction at 41 weeks seems to be not justified.

It has been estimated that between 500 and 1000 inductions are needed in order to prevent 1 case of stillbirth [20]. A very recent systematic review of RCT has not shown differences in the perinatal outcome between induction and expectant management [21].

On the contrary studies comparing elective inductions versus spontaneous onset of labor report a significantly increased rate of CS and operative deliveries after induction particularly in nullipara [22, 23].

Conclusions

An increased rate of complications (fetal, maternal and neonatal) is reported. By examining, when reported, the possible cause of adverse outcome it is clear that large fetal size has a protective effect on fetal/neonatal outcome, but has a negative effect on maternal and neonatal traumatic complications. Therefore the assessment of the fetal growth before choosing the management (active or expectant) is of paramount importance.

Routine induction at 41 weeks in uncomplicated pregnancies seems not to be justified as it does not improve the fetal/neonatal outcome and it is likely to increase operative deliveries and maternal complications. The crucial point for selecting pregnancies in which early delivery is necessary is the careful identification of the possible maternal and/or fetal complications already present.

Continuation of the pregnancy to 42 weeks and even more is safely possible provided that fetal testing are applied.

Anyway it must be remembered that as spontaneous onset of labor occurs in the majority of the cases in the 42nd week only a small number of cases (1.4%) reaches the 43rd week (301 days). Also in these cases the outcome is reported to be good possibly as a consequence of close monitoring.

Timed delivery (by induction or other method) should be performed on indication.

References


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