

The incidence of prolonged pregnancy in a Greek District Obstetrics & Gynaecology department: the respective roles of General Practitioners and Obstetrics Specialists

P. PANAGOPOULOS, S. SAMOLIS, K. PATSOURAS¹, I. PAPASTEFANOU,
A. ALEVIZOS, D. KASSANOS¹

RIASSUNTO: L'incidenza della gravidanza protratta in una Divisione Ostetrica Ginecologica: i ruoli dello Specialista in Ginecologia e del Medico di Medicina Generale.

P. PANAGOPOULOS, S. SAMOLIS, K. PATSOURAS, I. PAPASTEFANOU,
A. ALEVIZOS, D. KASSANOS

Scopo del lavoro. *Valutazione dell'incidenza di alcuni aspetti della gravidanza protratta nella nostra Divisione, ed il ruolo che può avere il medico di medicina generale nel miglioramento dell'esito perinatale.*

Pazienti e metodi. *Abbiamo esaminato le cartelle cliniche della Sala Parto in tutte le partorienti nel periodo 01/01/1991 fino a 31/12/2002. Per la valutazione dell'età gestazionale abbiamo usato la data dell'ultima mestruazione. Delle 76 gravidanze protratte, 53 provenivano dalla provincia, 16 da quartieri di Atene e 7 dalla città di Atene. Nessuna delle donne in esame si era recata dal Ginecologo o dal Medico di medicina generale fino alle ultime settimane di gravidanza. Sono stati valutati dati materni e fetali circa l'esito perinatale come la ventosa ostetrica, il taglio cesareo, il sesso ed il peso del neonato e la morte perinatale.*

Risultati. *Su 7.818 parti sono stati esaminati 76 neonati (0,97%) da gravidanze oltre la 42a settimana di gestazione. L'età media della madre era 25 anni. Di questi 42 sono nati per parto vaginale, 9 con ventosa ostetrica e 25 con taglio cesareo. Sono nati 34 maschi e 42 femmine. L'età media della gestazione era 42 settimane e 3 giorni. Il peso medio alla nascita era di 3.518,28 g. Non vi sono stati nati morti o morti nella età perinatale.*

Conclusioni. *Lo 0,97% di gravidanze costituisce una bassa percentuale. Forse tale percentuale è dovuta all'induzione di parto alla 41a settimana che abbiamo adottato dal 1998. La bassa percentuale di gravide che si sono recate dal ginecologo o medico di medicina generale ed il basso numero di gravide che hanno seguito i consigli per il controllo fetomaterno mostrano che il medico di medicina generale deve conoscere il livello di cura che si presta alla gravida. Soprattutto in provincia, dove non è facile recarsi dal ginecologo il medico di medicina generale deve assumere un ruolo più attivo e responsabile nel seguire, la gravidanza, in collaborazione sempre con lo specialista.*

SUMMARY: The incidence of prolonged pregnancy in a Greek District Obstetrics & Gynaecology department: the respective roles of General Practitioners and Obstetrics Specialists.

P. PANAGOPOULOS, S. SAMOLIS, K. PATSOURAS, I. PAPASTEFANOU,
A. ALEVIZOS, D. KASSANOS

Introduction. *The incidence of prolonged pregnancy in a Greek District Obstetrics & Gynecology department: Our twelve-year experience (1991-2002).*

Objective. *To assess some aspects and the incidence of post-term pregnancies (PTP) delivered in our Department from 01/01/1991 to 31/12/2002 and to indicate the possible ways in which the General Practitioner could contribute in order to improve health care outcomes.*

Patients and Methods. *We studied the data from the Delivery Room registry of the Obstetric and Gynecologic Department of "Tzaneio" General Hospital of Piraeus. The last menstrual period was used for the estimation of gestational age. All women with prolonged pregnancy (76), were from the Attica region (which has about 5 million inhabitants), 53 of them were residents of rural areas, 16 were residents of the suburbs and 7 were residents of Athens. None of them had consulted an Ob/gyn or a GP until the last few weeks of pregnancy. Fetal and maternal data regarding the pregnancy outcome were evaluated, including vacuum delivery, caesarean section rate, and infant's gender, number of previous gestations, birth weight, macrosomia, antepartum, intrapartum and postpartum death.*

Results. *PTP neonates (76), were delivered after 42 weeks of gestation among 7818 total deliveries, a percentage of 0.97%. The median age of women was 25 years of age. Of 76 neonates, 42 were born with vaginal delivery, 9 with vacuum extraction and 25 with caesarean section. The distribution of sex was 34 boys and 42 girls. The median gestational age was 42 weeks and 3 days. The median birth weight was 3,518.28 g. We had no stillbirths and we had one early neonatal death.*

Conclusions. *Less than 1% (0.97%) of post-term pregnancies is a very low percentage. This may represent the monitoring of cases reaching the 41st week of pregnancy with elective labour induction since 1998. The very low percentage of women who consulted an Ob/gyn or family physician during the gestational period, as well as the extremely low percentage of women who underwent the recommended fetal and maternal controls, indicate that the General Practitioner should be aware of these low rates and low standards of maternal care, of the low informational status (in terms of maternal health care services) of women living in rural areas (most of the women with prolonged pregnancies lived in rural areas, where there is no easy access to an Ob/Gyn) and assume a more active and more responsible role in monitoring pregnancy in close collaboration with a specialist.*

"Tzaneio" General Hospital, Piraeus, Greece
Department of Obstetrics and Gynaecology
University of Athens, "Attikon" General Hospital, Athens, Greece
¹3rd Department of Obstetrics and Gynaecology

KEY WORDS: Post-term pregnancies - General practitioner - Maternal care - Family Physician.
Gravidanza protratta - Cura materna - Medico di medicina generale.

Introduction

The incidence of prolonged pregnancy depends mainly on the definition and accurate determination of gestational age. The World Health Organization (WHO) and the International Federation of Gynecology and Obstetrics (FIGO) have defined prolonged pregnancy as 42 completed weeks or more (>294 days). The incidence will also vary depending on factors such as the population studied, labor induction, the frequencies of preterm birth, elective Caesarean Section, and the use of ultrasound for confirming or determining gestational age. Between 3% and 14% of pregnant women reach 42 weeks and 2% to 7% reach 43 weeks of gestation (1, 2). Accurate assessment of gestational age by ultrasound results in a reduction in the incidence of prolonged pregnancy. Dating of pregnancy by the last menstrual period (LMP), even when recalled with confidence, results in considerable dating error, with overestimation of gestational age. Early pregnancy ultrasound dating has been shown to be accurate (3, 4). It decreases the incidence of prolonged pregnancy from an average of 10% based on menstrual dates alone, to as low as 1-2% if ultrasound dating is used in conjunction with the last menstrual period. Early pregnancy ultrasound dating decreases the incidence of induction of labour for prolonged pregnancy.

Our objective was to evaluate the outcomes on the mother and the fetus, in post-term pregnancies delivered in our department, from January 1991 to December 2002, as well as to indicate the possible ways in which the General Practitioner could contribute in order to improve fetal and maternal health care outcomes in pregnancy.

Patients and methods

In this retrospective study we studied the data from the Delivery Room registry from January 1991 to December 2002. All women were from the Attica region which has about 5 million inhabitants. None of them had consulted an Ob/gyn or a GP until the last few weeks of pregnancy. The study group consisted of seventy-six (76) women that delivered after 42 weeks of gestation. Fifty-three women were residents of rural areas, 16 were residents of the suburbs of Athens and 7 were residents of Athens. Twin pre-

gnancies and all pregnancies in which infants suffered a major genital defect were excluded from the study. The gynecological medical record of almost all participants was dramatically incomplete and barely useful. As a result, Last menstrual period (LMP) was used for the estimation of gestational age. Fetal death is defined as stillbirth with birth weight ≥ 500 g or gestational age ≥ 20 weeks; neonatal death is defined as the birth of a living infant that dies before the 28th full day of life. Fetal and maternal data regarding the pregnancy outcome were evaluated, including vacuum delivery, caesarean section rate, and infant's gender, number of previous gestations birth weight, macrosomia, antepartum, intrapartum and postpartum death.

Results

We found seventy-six (76) women that delivered after 42 weeks of gestation, among 7.818 total deliveries during the study period (0.97%). The percentage range yearly was from 0% (2000) to 1,72% (1992). Thirty-four boys (44,74%) were delivered and forty-two girls (55,26%). Nineteen boys and 23 girls were born with vaginal delivery, 3 boys and 6 girls were born with vacuum extraction, and 12 boys and 13 girls were born with caesarean section.

Total caesarean section rate (regardless of gender) was 32,89% (caesarean section rate in non post term pregnancies was 28,93%).

The mean gestational age at the time of delivery was 42 weeks and 3 days (297 days), 297.47 days for boys and 296.78 days for girls. The mean gestational age at the time of delivery was 297.76 days for caesarean delivery, 296.76 days for vacuum extraction, and 296.77 days for vaginal delivery. The mean birth weight was 3518.28 g, 3625.29 g for boys and 3431.66 g for girls. The mean age of women that delivered was 25 years of age (range 15-38 years). The mean age of women that delivered by caesarean section was almost 27 years, by vaginal delivery was almost 25 years, and by vacuum extraction was 24 years of age. We had no stillbirths and we had one early neonatal death (1,31%), while the neonatal death rate in the general population is 0,78% (stillbirths included). Three of the neonates (3,95%) were transferred to a Neonate Intensive Care Unit (2,04% in the general population).

TABLE 1 - METHODS OF DELIVERY BETWEEN BOYS AND GIRLS.

Methods of delivery	Boys	%	Girls	%
Vaginal delivery	19	55,9	23	54,8
Vacuum extraction	3	8,8	6	14,3
Caesarean section	12	35,3	13	30,9
Total deliveries	34		42	

TABLE 2 - METHODS AND TERMS OF DELIVERY.

Methods of delivery	Post term gestation	%	Non post term gestation	%
Vaginal delivery	42	55,3	5014	64,8
Vacuum extraction	9	11,8	488	6,3
Caesarean section	25	32,9	2240	28,9
Total deliveries	76		7742	

Discussion

There are two categories of adverse fetal outcomes associated with advancing gestation. Those associated with decreased uteroplacental function, resulting in oligohydramnios, reduced fetal growth, passage of meconium, fetal hypoxia, and, potentially, stillbirth. We had no stillbirth, but we had one early neonatal death (17th day after delivery) due to respiratory problems. If the placental function is normal, the continued fetal growth has a subsequent increased risk of labor abnormalities such as, trauma during birth, including shoulder dystocia with possible permanent neurological injury. There was one incident with permanent neurological damage in our study, in an infant with a birth weight of 4590 g (1,31%), whereas in the general population the incidence of neurological damage during labour was (0,02%). Adverse physical consequences to the mother resulting from prolonged gestation include those associated with increased fetal size, which has an increased risk of short-term trauma to the pelvic floor, vagina, and perineum (as well as a possible longer-term risk of pelvic floor dysfunction), and postpartum hemorrhage. Interventions performed to reduce the risk of perinatal bleeding morbidity and mortality, such as induction of labor or caesarean section, have iatrogenic risks, such as infection, hemorrhage, and surgical injury. Caesarean section rate in our study (32.89%) was higher than other studies (5), and higher than our general population (28,93%). In addition, any adverse outcome for an infant will obviously have significant emotional impact on the mother. The most frequent cause of ap-

parently prolonged gestation is misjudging the time of ovulation and conception based on the time of the last known menstrual period (6). Randomized controlled trials (RCT) of routine versus indicated second-trimester ultrasound (U/S) have shown a decreased rate of induction of labor for post term pregnancy among women who have routine U/S (7). Useful measurements are fetal crown-rump length during the first trimester and biparietal diameter or head circumference and femur length during the second (8). Dating the pregnancy in the third trimester is unreliable because of normal variations in the size of infants at that time (± 3 weeks). In our study we used LMP to estimate gestational age due to lack of data for ultrasound estimations from 1991 to 1997. It is worth noting that a great percentage of the women (nearly 40%), did not seek help from an obstetrician or a general practitioner until the end of pregnancy (mostly immigrant women that had legal problems with immigration services due to their expired visa status, and nomads of Greek origin that did not have social insurance and permanent address), making things even more complicated (absence of medical record, or ultrasound). Cultural barriers may have also made such women from lower working class groups reluctant to contact a physician. It is interesting though that from 1998 to 2002, only 4 out of the 27 women that were diagnosed as post-term pregnancies were actually post-term using early ultrasound estimations (<56 days from LMP). When post-term pregnancy actually exists, the cause is usually unknown. In rare instances, it is associated with fetal conditions such as unencephaly and placental sulfatase deficiency (9). There are no reliable methods of predicting sponta-

neous onset of labor in prolonged pregnancies (10). Evidence from retrospective studies suggests that small-for-gestational-age (SGA) infants are at higher risk for perinatal complications, including perinatal mortality (adjusted RR 5.68; 95% CI, 4.37 to 7.38) and fetal distress (11, 12). We found only 0.97% of all gestations to be post-term in our study. This is a very low percentage as in most studies it ranges from 5% (14) to 10% (14) although there are studies with even lower rates (15). The low rates may represent the monitoring of cases reaching the 41st week of pregnancy with elective labor induction since 1998. Two general monitoring approaches have been developed to reduce the risk of adverse perinatal outcomes: elective labor induction when the pregnancy reaches 41 or 42 weeks of gestation, or expectant management with frequent fetal monitoring (non stress test, oxytocin stress test, ultrasound, and amniotic fluid index assessment) and selective labor induction. The two approaches remain controversial (16). 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. Although most authors agree (17) that induction of labor is preferable in women with Bishop score over 4, there is lack of agreement as to the monitoring of the patient who has Bishop score below 4. We adopted labor induction (since 1998) as the proper monitoring of pregnancies reaching the 42nd week of gestation, mainly due to the potential legal aspects in the event of a possible stillbirth. Prolonged pregnancy appears to be more common in primiparous and women with previous prolonged gestations (18, 19). In our study, primigravida were 38.16%, and women with previous prolonged gestation were 11.84% of the studied sample. The advanced maternal age seems to affect the prolongation of gestational age, not only in our study but in other studies as well (20). Women with advanced maternal age give birth to infants with greater birth weight, and deliver more often by caesarean section. Age is not the only factor that influences reproductive outcomes. Other factors are of equal or even greater im-

portance than age: family history, nutrition, underlying medical disorders, smoking, and other adverse habits. We believe that General Practitioners have an important role to play not only pre-conceptionally, but after birth as well. In a society such as ours, which places high value on individual performance and productivity, educational and economic achievement, the risks of delayed childbearing are not likely to count in personal decisions about childbearing, but proper health counseling about general issues (obesity, diabetes, hypertension) should become more intensive. The consequences of the trend to delay childbirth have practical implications for public health and health-care services, not the least of which is the increasing need for fertility services and obstetric care for an aging maternal population, and for more facilities to provide the intensive care required as the number of preterm births increases. This calls for a sustained initiative that harnesses the potential of health services, employers, the media, and others to ensure that women and their partners feel well supported. Several strategies could be used in order to preserve maternal and neonatal health, such as setting standards for maternity services, public education through media campaigns, and peer led initiatives to support individual women. However, the non-uniform response of the general practitioners today, shows that additional approaches are needed – for example, a strategy within the maternity and primary health care services (delivering of the service, providing information for patients, the demography of practice populations, and communication between hospital and practices, etc.) – especially in areas with a high proportion of ethnic minority births. Similar attempts at collaboration between General Practitioners and specialists, in a program which involved family physicians practicing in family medicine ambulatories and departments, working with Obstetrics/Gynecology specialists from the Hospital, have demonstrated very promising results (21).

Conclusions

The 0.97% of post-term pregnancies is a very low percentage. This may represent the monitoring of cases reaching the 41st week of pregnancy with elective labor induction since 1998 [use of prostaglandins or oxytocin depending on the Bishop score]. Although family physicians do not deliver babies on a regular basis, with specialist consultation twice weekly, they could perform most of the pre-natal and post-natal care, and they could also identify women with potential obstetrical complications and special medical problems. The very low percentage of women who consulted an

Ob/Gyn or family physician during the gestational period, as well as the extremely low percentages of women who underwent the recommended fetal and maternal controls, indicate that the General Practitioner should be aware of these low rates and low standards of maternal care, of the low informational status (in terms of maternal health care services) of women living in rural areas (especially remote areas on islands without easy access to specialized centers) and assume a more active and responsible role in managing pregnancy in close

collaboration with a specialist. General practitioners who work on islands and remote areas could guide women throughout their pregnancy so as to reassure the best outcome, since a neglected pregnancy has many risks which could jeopardize the health of both the mother and the fetus. We conclude that it is feasible to encourage general practitioners and midwives to undertake the task of health care for pregnant women if they are persuaded that it is practicable and that it benefits a large proportion of their patients.

References

1. Management of pregnancy beyond 40 weeks gestation *Am Fam Physician* 2005 May 15; 71(10) : 1935-41.
2. GRAND JM. *Induction of labor confers benefits in prolonged pregnancy.* *Br J Obstet Gynecol* 1994;111: 99-102.
3. MORIN I, MORIN L, ZHANG X, PLATT RW, BLONDEL B, BREART G, USHER R, KRAMER MS. *Determinants and consequences of discrepancies in menstrual and ultrasonographic gestational age estimates.* *BJOG* 2005 Feb;112(2):145-52.
4. NGUYEN T, LARSEN T, ENGHOLM G, MOLLER H. *A discrepancy between gestational age estimated by last menstrual period and biparietal diameter may indicate an increased risk of fetal death and adverse pregnancy outcome.* *BJOG* 2000 Sep;107(9):1122-9.
5. JM ALEXANDER, DD MCINTIRE et al. *Forty weeks and beyond: pregnancy outcomes by week of gestation.* *Obstet Gynecol* 96, 2, August 2000, 291-4.
6. SAVITZ DA, TERRY JW JR, DOLE N, THORP JM JR, SIEGA-RIZ AM, HERRING AH. *Comparison of pregnancy dating by last menstrual period, ultrasound scanning, and their combination.* *Am J Obstet Gynecol* 2002 Dec;187(6):1660-6.
7. CROWLEY P. *Interventions for preventing or improving the outcome of delivery at or beyond term (Cochrane Review).* In: The Cochrane Library, Issue 1, 1999. Oxford: Update Software.
8. TAIPALE P, HIILESMAA V. *Predicting delivery date by ultrasound and last menstrual period in early gestation.* *Obstet Gynecol* 2001 Feb;97(2):189-94.
9. ACOG Practice Patterns. *Management of postterm pregnancy.* *Int J Gynecol Obstet* 1997;60:86-91.
10. MOUW RJ, EGBERTS J, KRAGT H, VAN ROOSMULEN J. *Cervicovaginal fetal fibronectin concentrations: predictive value of impending birth in postterm pregnancies.* *Eur J Obstet Gynecol Reprod Biol* 1998;80:67-70.
11. CANGHEY AB, MUSCI TJ. *Complications of term pregnancies beyond 37 weeks of gestation.* *Obstet Gynecol* 2004 Jan; 103(1):57-62.
12. CAMPBELL MK, OSTBYE T, IRGENS LM. *Post-term birth: risk factors and outcomes in a 10-year cohort of Norwegian births.* *Obstet Gynecol* 1997;89:543-548.
13. OLESEN AW, BASSO O, OLSEN J. *Risk of recurrence of prolonged pregnancy.* *BMJ* 2003 Mar 1;326(7387):476.
14. RAND L, ROBINSON JN, ECONOMY KE, NORWITZ ER. *Post-term induction of labor revisited.* *Obstet. Gynecol* 2001 Nov; 96 (5 Pt 1) :779-83.
15. HANNAH ME, HANNAH WJ, HELLMAN J, HEWSON S, MILNER R, WILLAN A and the CANADIAN MULTICENTER POST-TERM PREGNANCY TRIAL GROUP. *Induction of labour as compared with serial antenatal monitoring in post-term pregnancy.* *N Engl J Med* 1992;326:1587-92.
16. IQBAL S. *Management of prolonged pregnancy.* *J Coll Physicians Surg Pa* 2004 May; 14(5): 274-7.
17. SANCHEZ-RAMOS L, OLIVIER F, DELKE I, KAUNITZ AM. *Labor induction versus expectant management for postterm pregnancies: a systematic review with meta-analysis.* *Obstet Gynecol* 2003 Jun;101(6):1312-8.
18. BODNER-ADLER B, BODNER K, PATEISKY N, KIMBERGER O, CHALUBINSKI K, MAYERHOFER K, HUSLEIN P. *Influence of labor induction on obstetric outcomes in patients with prolonged pregnancy: a comparison between elective labor induction and spontaneous onset of labor beyond term.* *Wien Klin Wochenschr* 2005 Apr; 117(7-8): 287-92.
19. O.Y. BISYARIN. *Cooperation of FP's and Ob/Gyn in women's reproductive health. 11th Conference of the European Society of General Practice/Family Medicine.* WONCA Europe 2005.
20. COLLINS JW, SCHULTE NF, GEORGE L, DROLET A. *Postterm delivery among African Americans, Mexican Americans and Whites in Chicago.* *Ethn Dis.* 2001 Spring-Summer;11(2):181-7.
21. ALFIREVIC Z, WALKENSHAW SA. *Management of post-term pregnancy: to induce or not?* *Br J Hosp Med* 1994;52: 218-221.