Available online at www.sciencedirect.com
ScienceDirect
European Journal of Obstetrics & Gynecology and Reproductive Biology 137 (2008) 165–171
ejog European Journal of Obstetrics & Gynecology and Reproductive Biology
www.elsevier.com/locate/ejogrb

Teenage pregnancies: Obstetric characteristics and outcome

Nandini Gupta *, Usha Kiran, Kiron Bhal [1]

Department of Obstetrics & Gynaecology, Cardiff & Vale NHS Trust, Cardiff, UK

Received 7 September 2005; received in revised form 2 June 2007; accepted 13 June 2007

Abstract

Objective: To quantify the age related risk of adverse obstetric outcome in primigravid women less than 20 years of age.
Study design: The study sample was drawn from Cardiff Births Survey (a computerized maternity information database) comprising 66,271 pregnancies in the South Glamorgan region during 1990–1999. Pregnancy outcomes of primigravid women were compared in age groups less than 20 years ($n = 4126$) and 20 to <35 years ($n = 17{,}615$). SPSS version 11 was used for statistical analysis. Student's *t*-test was used for continuous variables, Chi square, Fishers exact test was used for categorical variables.
Results: There was a lower incidence of multiple pregnancies (OR = 0.3(0.2–0.4)), spontaneous rupture of membranes >24 h (OR = 0.7(0.6–0.9)), and pregnancy-induced hypertension (OR = 0.8(0.6–0.8)) amongst teenage primigravidae but a higher incidence of anaemia (OR = 1.8(1.6–2.0)), and pyelonephritis (OR = 1.5(1.1–2.0)).

There was a lower incidence of induction of labour (OR = 0.7(0.7–0.8)) and use of regional analgesia in the teenage group. Teenage women were more likely to have a spontaneous vaginal delivery (OR = 2.1(2.0–2.3)) with a significantly lower incidence of instrumental delivery (OR = 0.5(0.5–0.6)), and Caesarean section (OR = 0.4(0.4–0.5)).

Inspite of a higher incidence of preterm labour (corrected OR = 1.4(1.1–1.7)) the perinatal outcome measures between the teenage group and the older group were not significantly different.
Conclusion: Teenage primigravidae are more likely to have a spontaneous vaginal delivery, without compromising the maternal or neonatal outcome.

Keywords: Teenage pregnancies; Obstetric outcome

1. Introduction

Teenage pregnancy is a worldwide social problem and its incidence shows marked variation amongst developed countries. USA has the highest incidence in the developed world [1] and the UK has the highest incidence in Europe [1].

There is conflicting evidence regarding the obstetric outcome. The pendulum has swung from studies showing an increase in various antenatal, intrapartum, postnatal complications to studies suggesting that these concerns could be unfounded [2–5]. Possible explanation for poor perinatal outcome associated with teenage pregnancy has been thought to be an effect of teenagers' poorer socio-economic condition [6]. A recent study suggests that teenage mothers, independent of socio-economic background, face an increased risk of premature death [7]. This is an important consideration irrespective of the obstetric outcome of teenage pregnancies. The aim of this study was to quantify the age related risk of adverse obstetric outcome in primigravid women less than 20 years of age.

2. Materials and methods

The study sample was drawn from Cardiff Births Survey; a population based database comprising of 66,271 pregnancies in the South Glamorgan region during 1990–1999.

* Corresponding author at: Milton Keynes General Hospital, Standing Way, Eaglestone MK6 5LD, UK. Fax: +44 908243919.
E-mail addresses: NGupta05@doctors.org.uk (N. Gupta), kiron.bhal@cardiffandvale.wales.nhs.uk (K. Bhal).
[1] Tel.: +44 2920 715155; fax: +44 2920 716112.

0301-2115/$ – see front matter
doi:10.1016/j.ejogrb.2007.06.013

The database includes all births registered since 1965.The database is robust and is regularly audited with appropriate training for the staff that input data into the database. Information from this database has been used in other studies published in peer review journals [8]. The data were entered into a Maternity Information System that was rigid in its design and as such had restrictions on what data could be entered into each field. There was crossfield checking and this included messages to ensure that coders double-check any information that was felt to be ''unusual'', e.g. out of normal range. The data are validated and for the purpose of the study have been used anonymously.

Pregnancy outcomes were compared by age at delivery in women less than 20 years old ($n = 4126$) and 20 to <35 years old ($n = 17{,}615$); women 35 years or older ($n = 1418$) were excluded. A subgroup analysis was also performed on the younger teenage group 17 years and less ($n = 1011$) to ascertain if they had a different outcome. Demographic information, antepartum complications, intrapartum details, neonatal outcome measures were recorded. Data are presented as percentages of women less than 20 and 20 to <35 year-old women, with odds ratio and 95% confidence intervals.

In the study population, maternal characteristics such as age and body mass index (BMI), gestational age, labour characteristics such as induction, augmentation, duration of labour, regional analgesia, interventions during labour and fetal characteristics such as birth weight were compared. Secondary outcome measures assessed, included maternal morbidity and perinatal morbidity and mortality.

Postpartum hemorrhage (PPH) included primary and secondary PPH. A blood loss of greater than 500 ml was considered excessive. Postdates was defined as gestational age greater than 40 weeks. Preterm labour was defined as <37 completed weeks. Early preterm labour was defined as less than 32 completed weeks. Macrosomia was defined as birth weight greater than 4000 g. Induction methods included prostaglandins, artificial rupture of membranes (ARM) with or without oxytocin. Augmentation included ARM or oxytocin or both.

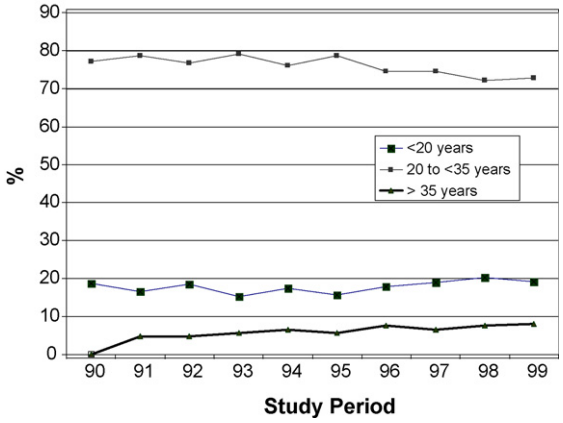

Fig. 1. Trend of pregnancies amongst teenage primigravidae compared to other age groups.

2.1. Statistical analysis

Statistical Package for Social Sciences (SPSS) version 11 was used for statistical analysis. Student's *t*-test was used for continuous variables, Chi square, Fishers exact test was used for categorical variables. A *p*-value of less than 0.05 was considered significant. Odds ratio with 95% confidence intervals were used to quantify risk.

3. Results

Teenage pregnancy accounted for 17.8% of all primigravid pregnancies coded in the Cardiff Births Survey database during 1990–1999. Fig. 1 depicts the trend in teenage pregnancies compared to other age groups. The obstetric outcome of the teenage group was compared with women aged 20 to <35 years. A subgroup analysis was done for women aged less than 17 years (the early teen group). The mean age in the teenage group was 18.3 years (13.7–19.9 years), the mean age in the early teen group was 16.3 years and the mean age in the 20 to <35 years group was

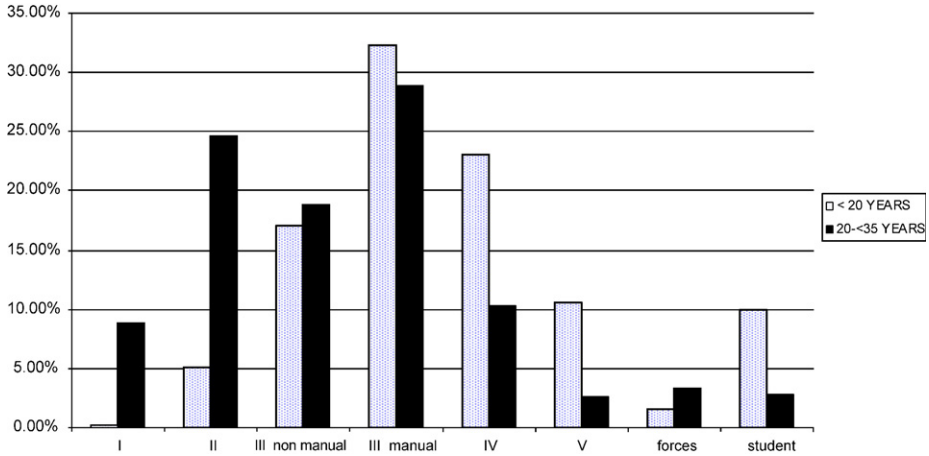

Fig. 2. Distribution of social class.