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CLINICAL ARTICLE

Perinatal outcomes associated with subsequent pregnancy among adolescent mothers in Peru

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ABSTRACT

Objective: To assess the perinatal outcomes of a subsequent pregnancy among adolescent mothers living in Peru. *Methods:* A large hospital-based retrospective cohort study was conducted to evaluate singleton births during a 9-year period (2001–2009). The study population was divided into 3 groups: adolescents aged 15–19 years who had 1 previous parturition (n = 2074), nulliparous adolescents (n = 20 721), and multiparous adults aged 20–29 years (n = 23 129). *Results:* No significant differences were found between multiparous adolescents and the 2 control groups with regard to preterm delivery, perinatal death, and 5-minute Apgar score below 7. Logistic regression analysis showed no significant differences in the rates of cesarean delivery or preterm birth before 34 or 37 weeks. After adjusting for confounding factors, low birth weight (LBW) and small for gestational age (SGA) were more likely to occur during a subsequent pregnancy among adolescent mothers than during the 1st pregnancy among nulliparous adolescents. The odds ratios were 1.38 (95% CI, 1.14–1.67) and 1.27 (95% CI, 1.02–1.56), respectively. *Conclusion:* Multiparous adolescents are more likely to experience LBW or SGA than are nulliparous adolescents. No significant differences in other perinatal outcomes were found among the 3 study groups.

1. Introduction

Pregnancy among adolescents represents a major public-health issue worldwide. In the USA, the teenage birth rate is 42 per 1000 individuals [1], while in the UK the rate is around 27 per 1000 individuals—the highest birth rate among adolescents residing in Western Europe [2]. The level of pregnancy during adolescence is particularly problematic in low-income countries. Data suggest that 85% of all adolescent women reside in low-income countries, and that 25% of all maternal deaths occur within this vulnerable group [3]. In Peru, approximately 13% of adolescent girls aged 15–20 years become pregnant [4]. Unfortunately, data about the rate of subsequent pregnancy among adolescent mothers in Peru are not available; however, it is thought to be high.

Pregnancy among adolescents has been the focus of several studies. The findings have suggested an association with adverse perinatal outcomes, such as preterm delivery, low birth weight [5–7], and neonatal death [8]. In addition, a correlation has been reported between pregnancy among adolescents and adverse living conditions in later life [9]. Despite the magnitude of the problem, it remains unknown whether the poor pregnancy outcomes reported among adolescents are partly attributable to young maternal age or whether they are the consequence of coincident sociodemographic factors. Adolescents who become pregnant are likely to be non-white, live in poverty, and be poorly-educated; furthermore, the prenatal care they receive is possibly inadequate [10]. In addition, teenaged girls who become pregnant are likely to be unmarried: data from the USA report a birth rate of 78.9% among unmarried adolescents [11].

The probability of a 2nd birth among adolescent mothers is higher than the likelihood of a 1st birth among adolescents who have not yet had a child [12]. Approximately 25% of births to adolescents are not 1st births [11]. Although several studies have focused on perinatal outcomes of subsequent pregnancies among adolescent mothers, the results remain inconsistent. Some findings have suggested that multiparous adolescents may be at increased risk of certain perinatal problems, such as delivery of newborns small for gestational age (SGA), low birth weight (LBW), and preterm delivery [13–15]. Conversely, other data indicate that high rates of LBW and SGA among adolescents are associated with 1st birth rather than subsequent births [16]. Clearly, it is important to determine the consequences of a 2nd birth in adolescent mothers by controlling for confounding factors, particularly access to prenatal care. Adolescents are likely to have reduced access to such care, and to take less advantage of the available service, when compared with adult mothers, especially during a subsequent pregnancy [1,17].

The aim of the present study was, therefore, to assess perinatal outcomes—such as preterm delivery, LBW, SGA, perinatal death, need

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for cesarean delivery, and 5-minute Apgar score below 7—during a 2nd birth among a group of adolescents, and to compare these outcomes with those of nulliparous adolescents and multiparous adult women attending the same hospital in Peru.

2. Materials and methods

A large retrospective cohort study was conducted to evaluate women who gave birth at the Instituto Nacional Materno Perinatal, Lima, Peru, between January 1, 2001, and December 31, 2009. Demographic, obstetric, and perinatal data were collected prospectively in a standardized format; data for the present study were retrieved from an electronic database. The study protocol was approved by the local Institutional Review Board. Inclusion criteria were gestational age (GA) at birth of greater than or equal to 24 weeks, birth weight of more than 500 g, maternal age 15–29 years, and complete data on the outcome variables. Exclusion criteria were multiple pregnancies and more than 1 previous birth. The study population was divided into 3 groups (Fig. 1): adolescents having their 2nd parturition (multiparous adolescents), adolescents having their 1st parturition (nulliparous adolescents), and women aged 20–29 years having their 2nd parturition (multiparous adults).

The perinatal outcomes were GA at birth, preterm delivery, birth weight, birth size, perinatal death, Apgar score, and cesarean delivery. The GA at birth was defined as the number of completed weeks of gestation at the time of delivery. This value was determined from the last menstrual period for women with regular periods, and by ultrasonography when the date of the last menstrual period was unknown or when the difference of dating between the last menstrual period and the ultrasound scan was more than 7 days in the 1st trimester or more than 10 days in the 2nd trimester. Preterm birth was categorized as very early preterm birth (all births before 28 weeks' gestation), early preterm birth (all births before 34 weeks' gestation), and late preterm birth (all births before 37 weeks' gestation). A birth weight of less than or equal to 2500 g was classed as LBW, while SGA was defined as a live birth with a weight below or equal to the 5th percentile for GA according to local references [18]. Perinatal death was classified as the delivery of a stillbirth after 24 weeks' gestation or the occurrence of neonatal death within the 1st week of life. A 5-minute Apgar score of less than 7 was considered to be low. Delivery by cesarean included both emergency and elective procedures; vaginal delivery was the usual outcome.

Maternal and obstetric characteristics were maternal age (defined as the mother's age in completed years at the time of delivery); body mass index (BMI, calculated as pre-pregnancy weight in kilograms divided by the square of height in meters); previous spontaneous abortion; previous cesarean delivery; previous perinatal death; and prenatal care, categorized as adequate, intermediate or inadequate

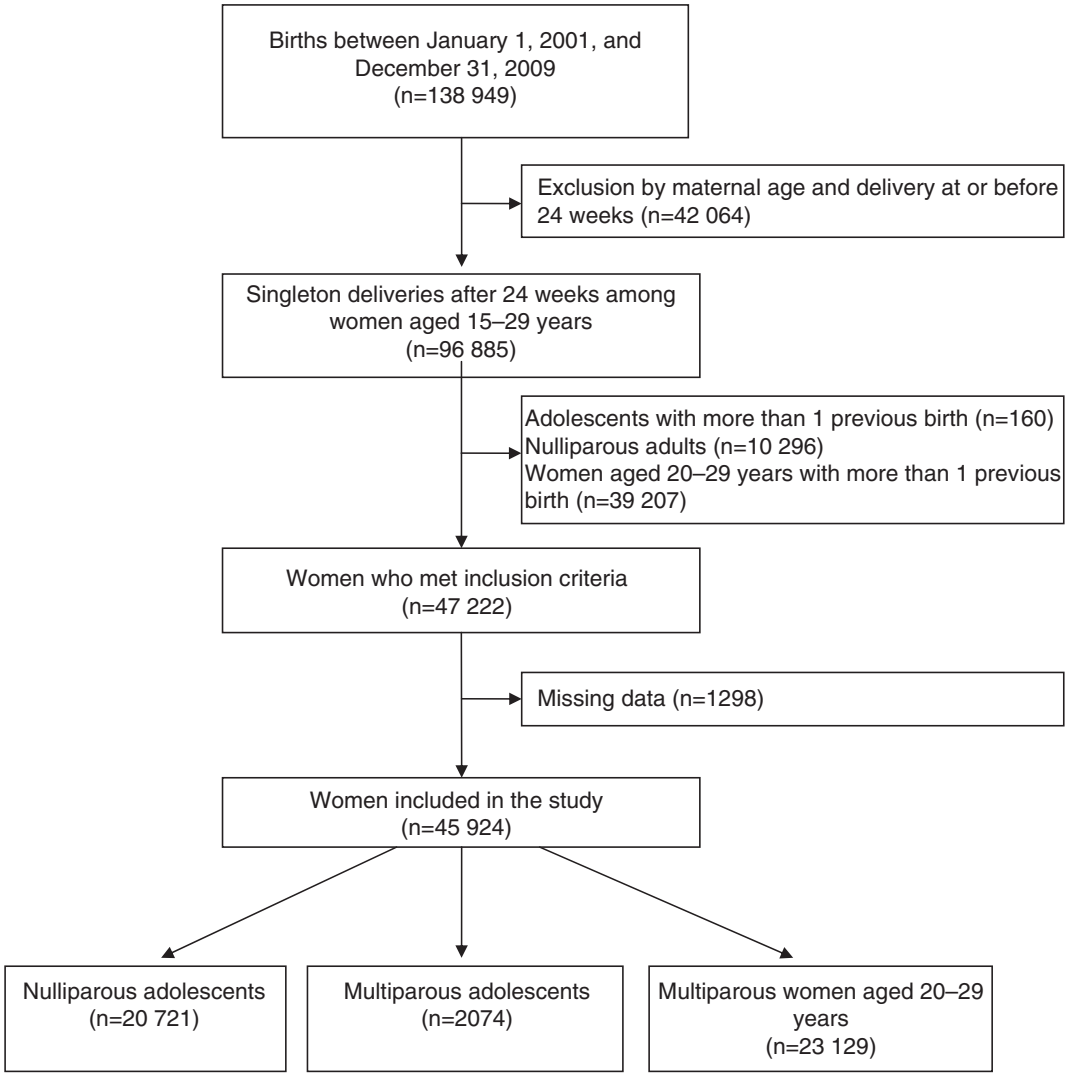

Fig. 1. Flow of participants through the study.