

論文内容の要旨

論文題目 Maternal and perinatal outcomes among adolescent primiparas in
developing countries: a multi-country analysis
(発展途上国の若年初産婦における周産期転帰に関する研究
-多国間調査分析-)

トゴバタラ ガンチメグ

氏名 Togoobaatar Ganchimeg

Background: It is estimated that about 15 million adolescents aged 15-19 years give birth each year and more than 90% of these births occur in developing countries. Pregnancy during adolescence has been associated with higher risks of adverse pregnancy outcomes such as low birth weight, preterm delivery, perinatal and maternal death. The contribution of young age itself to the risk of adverse pregnancy outcomes among adolescents is difficult to estimate as the risk may be at least partly attributable to the unfavourable socio-demographic characteristics of adolescent mothers.

Despite the fact that most adolescent pregnancies occur in developing countries, large studies from developing countries are scarce and most of these studies have not taken into account the confounding effect of socio-demographic factors.

Objective: To investigate the risks of adverse pregnancy outcomes and cesarean section among adolescents in developing countries.

Method: Data from the 2004–2008 WHO Global Survey on Maternal and Perinatal Health and the Mongolian Maternal and Newborn Health Study were analyzed.

Inclusion of the study was restricted to primiparous women aged less than 25 years who had a singleton neonate of birth weight ≥ 500 g, or gestational age ≥ 22 weeks if birth weight was missing. Maternal age was categorized into groups: younger (under 16 years) and older adolescents (16-19 years), and adult mothers (20-24 years). Outcomes of interest in this study were preterm delivery (< 37 weeks of gestation), low birth weight ($< 2,500$ g), stillbirth (fetal death with birth weight of < 500 g or missing gestational age at < 22 weeks), perinatal death (stillbirth or neonatal death within 7 days of a live birth), cesarean section (C-section), C-section indicated for cephalopelvic disproportion (CPD), and maternal death.

To estimate the effects of young maternal age on the risks of adverse pregnancy outcomes, multilevel logistic regression models were employed. Adjustments were made for gross national income (GNI) per capita, maternal and early neonatal mortality rate at the country level; facility complexity score at the facility level; and marital status, maternal education, and number of antenatal visits at the individual level. For analyses of perinatal mortality, C-section, and C-section indicated for CPD as the outcomes, further adjustments were made for gestational age at birth and short maternal height (< 1.50 m).

Results: A total of 80,143 primiparous mothers aged under 25 years and their singleton infants from 24

developing countries in Africa, Latin America, and Asia were analyzed.

Adolescent mothers were more likely to be single, to have lower body mass index and shorter stature, and to have fewer antenatal visits. The risk of maternal death was significantly higher among adolescent mothers aged younger than 16 years in Africa compared with older mothers. After adjustment for country- and facility-level random effects and individual-level sociodemographic characteristics, adolescents aged 16–19 years had significantly lower risk of cesarean section (adjusted odds ratio [AOR]: 0.74; 95% CI: 0.71–0.77) than mothers aged 20–24 years. When restricted to cesarean section indicated for presumed cephalopelvic disproportion, the risk was significantly higher among adolescent mothers aged younger than 16 years (AOR: 1.25; 95% CI: 1.05–1.48). Adolescent mothers (<19 years) had significantly higher risks of low birth weight (LBW) and preterm birth, and the risks were highest among adolescents aged younger than 16 years (low birth weight [AOR: 1.33; 95% CI: 1.14–1.54] and preterm birth [AOR: 1.56; 95% CI: 1.35–1.80]). The significantly high risk of perinatal death among infants born to younger (AOR: 1.53; 95% CI: 1.19–1.96) and older adolescents (AOR: 1.15; 95% CI: 1.03–1.27) was attenuated after further adjustment for sociodemographic factors, number of antenatal care visits and gestational age at birth.

Discussion: Using a large multi-country dataset, we have illustrated the characteristics of adolescent mothers and their delivery outcomes in 24 developing countries. To the best of our knowledge, this is the largest cross-regional study to report pregnancy outcomes of adolescents taken account for country and health facility effects in addition to socio-demographic characteristics to explain whether the effects observed are due to biological mechanisms or health system factors.

Consistent with previous studies from developed and developing countries, a significantly lower risk of all C-Section was observed for adolescents aged 16-19 years after adjustment for facility- and country-level effects and potential confounders at individual level. The lower rates of C-Section among those aged 16-19 were likely to be influenced by the practitioner's policy or maternal opinion and may not necessarily indicate that younger mothers had less obstetric complications. When restricted to C-Section with indication for CPD, we found a significantly higher risk among adolescent mothers aged ≤ 15 years which is consistent with previous studies. Since adolescents are still in the growing phase, the pelvis has not yet reached maximum growth and is expected to be a cause of CPD or obstructed labor.

Our study findings suggested that the risk of neonatal mortality among adolescents is mediated by poor socioeconomic status, inadequate antenatal care and the higher incidence of preterm birth among younger mothers.

Conclusion: In conclusion, our results demonstrate that adolescent pregnancy occurring among the very young (≤ 15 years) is associated with increased risks of C-section indicated for CPD, and that younger age increases the risk of LBW infants and preterm delivery. In addition, maternal and perinatal mortality rates among adolescents were higher in African. Thus, preventing early pregnancy is important to reduce maternal and neonatal morbidity and mortality among adolescents.