Caesarian sections in Guadalajara, Mexico: sociodemographic risk factors

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In recent decades, worldwide, there has been an appreciable increase in the practice of surgical procedures during childbirth,^{1,2} in spite of the risk this means for a woman's health. In Mexico, almost a third of the deliveries performed in some public health institutions are by caesarian section.³ Together with the purely clinical reasons that lead to a caesarian section, there are also related sociodemographic conditions.⁴ This study seeks to determine the proportion of caesarian deliveries and to identify the maternal sociodemographic factors associated with caesarian section in primiparous residents in Guadalajara, the second largest city of Mexico.

Methods: In 1992–93 a comparative cross sectional study was conducted in Guadalajara on the population covered by the Mexican Social Security Institute (MSSI). The MSSI offers health services to people with a steady job (for example, industrial and services workers, employees, teachers) and their families and attends about 60% of childbearing in Guadalajara. A probabilistic sample was designed, representative of the first live births (25 662) and their respective mothers. Subjects were randomly chosen from the MSSI 1992–93 birth registers. The original sample size was 545, but because some dwellings were not found, data were available on only 510 (response rate 93.6%). A baseline questionnaire was administered by social workers to all mothers in their homes, and additional medical data (like “delivery mode”: caesarian or vaginal) were obtained from the clinical records. Diverse maternal sociodemographic conditions before pregnancy, which could be considered risk factors for the caesarian section, were analysed, as were factors related to pregnancy that might be possible confounders. Associations between the variables studied (table) and caesarian section were analysed by logistic regression model.⁵

Results: Of the 510 mothers studied, 150 (29.4%) (95% CI 25.5%, 33.3%) had a caesarian section. In the univariate analysis, socio-demographic factors such as maternal age (35 years old and above), living in overcrowded conditions (four persons or more in a room used for sleeping), and belonging to the social group of “employees and workers of the intellectual sphere” (for example, teachers, physicians, secretaries) showed a statistically significant association with caesarian section. Furthermore, health problems during pregnancy (for example, urinary tract infection, bleeding, diabetes) and gestation less than 38 weeks or greater than 42 weeks also showed a significant association with caesarian section. In the multivariate analysis, the adjusted odds ratio (OR) for maternal age and overcrowding increased, while maintaining their statistical significance. Although in the social group's case the OR is similar, it loses statistical significance. Health problems during pregnancy and the length of pregnancy maintain similar ORs and a significant statistical association with the caesarian section.

Discussion: This study has limitations: its scope is limited to mothers who received care through the MSSI and there may be information bias (mothers with caesarian section could have more complete clinical records). Nevertheless it seems to confirm the importance of caesarian section in women who give birth to their first child in a social security funded institution. This is not only because many primiparous women have medical problems during pregnancy, but also because the medical profession in Mexico seems to believe that a caesarian section is extremely safe and that a vaginal delivery is old fashioned. The relatively high rate of caesarian section in primiparous women becomes more relevant, given the fact that Mexican obstetricians seem to

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Logistic regression-derived odds ratio estimates (univariate and multivariate analysis), and 95% confidence intervals, for caesarian section, associated with selected variables. Guadalajara, Mexico, 1992–93.

Variable	live/caesarian birth/sections * No/%	Univariate analysis			Multivariate analysis		
		OR	95% CI	p value	OR	95% CI	p value
Overcrowding (4 or + persons per room)	47/40.4	1.5	(1.4–1.7)	0.04	1.8	(1.2–2.9)	0.00
Family type (extended family)	23/43.5	1.9	(0.8–4.4)	0.13	1.9	(0.8–4.8)	0.13
Maternal age (35 or + years old)	46/43.5	2.8	(1.1–7.0)	0.03	3.3	(1.3–8.8)	0.02
Maternal schooling (10 or + years)	143/34.3	1.4	(0.9–2.1)	0.13	1.4	(0.9–2.1)	0.20
Maternal work (yes)	168/32.7	1.2	(0.8–1.9)	0.24	1.1	(0.7–1.7)	0.50
Maternal social group (employees, intellectual workers)	222/33.8	1.4	(1.0–2.1)	0.05	1.4	(0.9–2.0)	0.19
Maternal marital status (unmarried)	49/32.6	1.2	(0.7–2.2)	0.50	1.2	(0.7–2.4)	0.50
Length of gestation (<38, >41 weeks)	124/38.7	1.7	(1.1–2.6)	0.01	1.7	(1.1–2.6)	0.03
Weight increases during pregnancy (15 or + kgs)	76/39.5	1.4	(0.9–2.1)	0.12	1.3	(0.8–2.0)	0.22
Prenatal care initiation (after first trimester)	131/24.4	1.4	(0.9–2.2)	0.15	1.3	(0.8–2.1)	0.28
Multiple pregnancy (yes)	58/34.5	1.3	(0.7–2.3)	0.36	1.3	(0.7–2.3)	0.46
Health problems during pregnancy (yes)	245/34.3	1.6	(1.1–2.3)	0.02	1.6	(1.1–2.5)	0.02

* n = 510

observe some unwritten general rules. Once a patient has had a caesarian section, subsequent deliveries will always be carried out using the same method, and after three caesarian sections the women cannot have any more children and should be sterilized.¹ This chain of events has far reaching consequences in a country, like Mexico, which has high birth rates.

On the other hand, although there are conditions related to pregnancy that are logically associated with caesarian section, there are maternal sociodemographic factors that, even when these conditions are controlled for, maintain a strong association with the caesarian section and can be considered predictors of this procedure at the start of pregnancy. Of course, having the first pregnancy after the age of 34, or living in poor conditions (of which overcrowding is a good indicator) can imply complications during pregnancy that significantly increase the risk of needing surgery during childbirth. Furthermore, one aspect

should not be disregarded: for women in social strata with a higher educational level and social status, a caesarian section could be an ideal way of giving birth. Thus, many women in these groups request it.

These findings mean that the MSSI primary care service has the means of identifying primiparous women in need of earlier and better prenatal care and can thereby reduce the incidence of caesarian section.

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