

Short communication

Caesarean section rates in teaching hospitals of Tehran: 1999–2003

A. Moini,^{1,2} K. Riazi,¹ A. Ebrahimi¹ and N. Ostovan¹**معدلات إجراء العملية القيصرية في المستشفيات التعليمية في طهران: 1999–2003**

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الخلاصة: أُجري تحليل استعادي للمعطيات التوليدية المُستقاة من ثلاثة مستشفيات على مدار خمسة أعوام، بُعِثَ تحديد اتجاهات إجراء العملية القيصرية في المستشفيات التعليمية التابعة لجامعة العلوم الطبية. وقد تبين أن معدل إجراء العملية القيصرية قد ارتفع من 35.4% من الولادات في عام 1999 إلى 42.3% في عام 2003. وأظهرت المعطيات حدوث زيادة المطردة في العمليات الاختيارية، مما يفسر زيادة المعدل الإجمالي لهذه العملية.

ABSTRACT To determine the trends of caesarean section in teaching hospitals of Tehran University of Medical Sciences, a retrospective analysis was performed on the obstetric data from 3 hospitals in a 5-year period. The caesarean section rate increased from 35.4% of deliveries in 1999 to 42.3% in 2003. The data showed that there was a steady increase in elective operations that might explain the rise in overall caesarean section rate.

Taux de césariennes dans les centres hospitalo-universitaires de Téhéran : 1999-2003

RÉSUMÉ Afin de déterminer la tendance caractérisant les césariennes pratiquées dans les centres hospitalo-universitaires de l'Université des Sciences médicales de Téhéran, il a été procédé à une analyse rétrospective des données obstétricales collectées dans 3 centres sur une période de 5 ans. Il est apparu une augmentation du taux de césariennes, celui-ci passant de 35,4 % des accouchements en 1999 à 42,3 % en 2003. Les données ont mis en évidence une augmentation constante des interventions programmées susceptible d'expliquer l'accroissement du taux de césariennes.

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Received: 12/05/05; accepted: 22/08/05

Introduction

Caesarean section (CS) is mainly performed to save the lives of mother and child and to ensure a healthy outcome when normal vaginal delivery is not possible or there are concomitant hazards for mother or fetus. However, compared with vaginal delivery, CS is associated with higher health risks for mother and baby as well as higher costs of health care [1]. High CS rates and unnecessary caesarean operations have been among the most debated topics of international public health. The World Health Organization (WHO) has proposed a rate of 15% as the highest acceptable CS rate for every region of the world [2].

Few data about the situation in the Islamic Republic of Iran has so far been published, and the picture is unclear. Between 1967 and 1983, a 3.09% CS rate was reported from a maternity hospital in Tehran [3]. Some unpublished reports show that CS rates in Roointan-Arash Hospital, Tehran, were 11% in 1990 [4] and 24.5% in 1994 [5]. According to a report in Tehran in 2001, the CS rate was 84% in private hospitals and 47% in community hospitals [6]. However, few updated reports can be found on the status of CS in teaching hospitals.

This paper reports the rates of CS and its indications in teaching hospitals of Tehran University of Medical Sciences, Islamic Republic of Iran, over a 5-year period.

Methods

A retrospective review of records was made at the 3 teaching hospitals of Tehran University of Medical Sciences (Roointan-Arash, Vali-e-Asr and Shariati Hospitals). These hospitals have a good coverage for the city of Tehran from east to west and the majority of the obstetric cases who refer to these hospitals are from low to middle

socioeconomic classes. For the years 1999 to 2003, the annual number of deliveries, the annual number of CS deliveries and the indications for CS were noted.

The trends were analysed by Mantel-Haenszel chi-square test, using *SPSS*, version 9.0.

Results

In a 5-year period a total number of 30 924 deliveries were recorded in the 3 hospitals, of which 12 490 (40.4%) were delivered by CS. The CS rates increased from 35.4% in 1999 to 43.8% in 2002 which is an 8.4% rise, although the rise showed a plateau in 2003 (Table 1). Statistical analysis showed that there was a significant increase in the CS rate over the 5-year study (Mantel-Haenszel $\chi^2 = 86.93, P < 0.001$).

The indications for CS for the 5 years combined were: repeat caesarean section (31.2%), fetal distress (22.7%), failure to progress (9.3%), malpresentation (7.8%), elective operation (7.5%), cephalopelvic disproportion (5.9%), placental problems (abruptio placenta, placenta previa) (3.1%), pre-eclampsia (3.1%), multiple pregnancy (2.8%), cord prolapse (0.4%) and other (6.2%). The annual rates of the most prevalent indications for CS showed that elective operations increased steadily from 6.9% of CS in 1999 to 11.8% in 2003 (Table 1).

Discussion

Our data show that the CS rate in the teaching hospitals of Tehran has risen from 35.4% in 1999 to 42.3% in 2003. Since our study did not cover home births and other types of hospitals such as private hospitals, these data do not represent the CS rate of the whole city. Moreover, the CS rates at teaching hospitals tend to be higher than

Table 1 Trends in caesarean section (CS) delivery rate and main indications in 3 Tehran teaching hospitals

Variable	Year					Total
	1999	2000	2001	2002	2003	
<i>CS deliveries</i>						
Total no. of deliveries	6 279	6 789	5 987	5 516	6 653	30 924
No. of CS deliveries	2 220	2 662	2 503	2 416	2 689	12 490
% of total	35.4	39.2	41.8	43.8	42.3	40.4
Mantel-Haenszel $\chi^2 = 86.93; P < 0.001$						
<i>Indications for CS (% of CS)</i>						
Repeat caesarean section	28.7	28.0	34.8	31.8	32.7	31.2
Fetal distress	28.6	22.6	21.5	21.6	19.8	22.7
Failure to progress	10.1	13.0	6.2	6.1	10.9	9.3
Malpresentation	7.4	8.6	8.2	7.4	7.5	7.8
Elective operation	6.2	3.9	5.0	10.5	11.8	7.5
Other ^a	19.0	23.9	24.3	22.6	17.3	21.5

^aIncluding cephalopelvic disproportion, placental problems (abruptio placenta, placenta previa), pre-eclampsia, multiple pregnancy, cord prolapse.

at district hospitals, since high-risk cases and prolonged deliveries are more likely to be referred to a teaching hospital. Yet our report, together with the report by Shariat et al. [6] showing an 84% CS rate in private hospitals and 47% in community hospitals of Tehran in 2001, suggests high CS rates for hospitals in Tehran. A large percentage of this high CS rate is due to repeated caesarean sections that comprise 31.2% of deliveries.

Elective CS rates have almost doubled during the 5-year period and might account in part for the increased CS rates of the hospitals. The steady increased rate of elective operations might be partly because of the change in mothers' attitudes toward CS

to avoid labour pain and pelvic relaxation. Elective CS increases the risk of prematurity and respiratory distress syndrome, both associated with multiple complications, intensive care and burdensome financial costs [7].

In summary, this review of 30 924 deliveries in teaching hospitals of Tehran showed a 6.9% increase in the CS rates over a 5-year period. Improving management and pain relief for vaginal delivery might reduce the demand for elective caesareans. In addition, vaginal birth after previous CS [8], which has not been routine in the Islamic Republic of Iran, is a solution to reduce repeat CS rates.

References

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Some indicators for making pregnancy safer in the WHO Eastern Mediterranean Region

- Pregnant women attended at least once during pregnancy, by trained personnel (excluding traditional birth attendants) for reasons relating to pregnancy (rate 60.3%).
- Deliveries attended by trained personnel (excluding traditional birth attendants) (rate 53.3%).
- Proportion of caesarean sections of all deliveries: number of caesarean sections per 100 deliveries conducted in health institutions run by the public, private and nongovernmental sectors (rate 17.4%).
- Pregnant women with anaemia (screened during pregnancy for haemoglobin concentration) with haemoglobin concentration of less than 110 g/l (rate 40.9%).
- Maternal mortality ratio: number of maternal deaths per 100 000 live births (rate 370).
- Neonatal mortality rate: deaths of live born infants occurring during the period birth–28 days per 1000 live births (rate 32.7).

Data from 2004. Source: Fact sheet on making pregnancy safer in the Eastern Mediterranean Region, 2004. In: Strategic directions for accelerating the reduction of maternal mortality in the Eastern Mediterranean Region: a Regional framework (WHO-EM/WRH/047/E) available at: <http://www.emro.who.int/dsaf/dsa468.pdf>