

Choice of Delivery in Tehran and Some Related Factors

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Abstract

Objective: This study assessed the influence of maternal request on elective cesarean rate and related factors in maternity hospitals in Tehran.

Materials and Method: This cross sectional descriptive analytic study was performed via a two-step random sampling technique, using data from 824 pregnant women who attended the maternity hospitals in Tehran in 2001. A questionnaire covering past and present obstetrical history and demographic characteristics was completed for each mother. SPSS software was used for data analysis. Descriptive analysis and inference tests, including chi-square and t-tests were used. Logistic regression test was also used to find the correlation between variables. P value less than 0.05 was considered for statistical significance.

Results: Totally 66.5% of mothers underwent cesarean and 33.5% had normal vaginal delivery. From cesarean cases 72% were elective and of these 22% were done upon maternal request. It was shown that 71% of mothers who selected cesarean had no scientific reason. Also, 65% of doctors suggested cesarean for their patients without any true medical indication. The majority of elective cesareans performed on maternal request were done in private hospitals (86% in private vs. 14% in public hospitals) ($P < 0.0001$). High educational, employment status and first pregnancy significantly increase the demand for cesarean section.

Conclusion: Increasing the level of awareness and attitude of mothers and providing painless normal vaginal delivery as well as vaginal delivery after previous cesarean, the frequency of unnecessary cesareans and related complications can be decreased.

Key words: Cesarean, Elective cesarean, Maternal request

Introduction

The main aim of performing cesarean section is to assure the safety and health of both mother and fetus

and it is the choice in conditions where the mother's or child's health is endangered. The World Health Organization has announced the maximum cesarean rate, according to actual and practical indications, to be around 15 % (1). However, this rate varies greatly in different regions worldwide and has increased from 5% to 25% over the last 20 years.

Studies indicate that the increased rates of cesarean are not due to improvement in the surgical pro-

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cedures or anesthetic techniques, but rather, the true causes remain unclear. However, motivations for the choice include mother anxiety for often planning one child only, avoidance of labor pains and trauma to the pelvis or perineum, history of previous difficult NVD, fear of being faced with legal issues and the belief that cesarean is safest for baby (5, 6, 7).

Birth of a child is one of the sweetest moments in parent's life, but it is important to decide on the mode of delivery. The mother has the right to freely choose the way she wants to give birth, but this decision must be scientifically based (6, 7).

One of the reasons why mothers demand cesarean is the fact that this method is more modern as compared to the more traditional normal vaginal delivery (NVD) (7, 8). In modern and developed countries, however, it is aimed to decrease the rate of cesarean and to convince mothers to deliver vaginally (9). Like other surgical operations, cesarean carries the risk of infections, including local wound, and pelvic, respiratory and urinary tract infections as well as lung emboli, venous thrombosis and complications of anesthesia. Thus, morbidity and mortality rates are higher in cesarean than NVD in both mother and child (6,7). In addition, studies show that the financial burden related to cesarean, including duration of hospitalization, drugs used, and their complications are significantly greater in cesarean as compared to NVD (1). These factors indicate that morbidity and economic burden of cesarean is significantly greater than NVD and this method of delivery should be used only in certain circumstances and only when indications exist.

The aim of this study was to determine the influence of maternal request on the rate of elective cesarean in maternity hospitals in Tehran during the year 2001 with the attempt to overcome this health problem.

Materials and methods

This cross sectional descriptive analytic study was performed by a two-step random sampling technique, using data from 824 pregnant women who attended maternity hospitals in Tehran in 2001. First, a list of all maternity centers throughout Tehran was prepared and the mean number of deliveries in each hospital was noted. Then, 20 hospitals with suitable delivery rates were selected and 41 cases were randomly enrolled from each center. The method of data collection in our study was reviewing medical record files and filling questionnaires, which were completed by

trained persons who interviewed both mothers and doctors. The study was approved by the medical ethics committee of TUMS according to the Helsinki declaration. Study conditions were similar in all hospitals. Data were then entered into a computer and analyzed using SPSS software. In order to classify the data descriptive analysis was used and inference tests, including chi-square and t-tests, were used to find the relationship between two variables. Logistic regression model was also used to find the correlation between variables. P value less than 0.05 was considered for statistical significance.

Results

A total of 824 mothers were enrolled from teaching hospitals (39%), private hospitals (30%), hospitals affiliated to the military(Sepah and Shahed) (20%) and public hospitals (11%). Of all deliveries, 66.5% and 33.5% were performed by cesarean and NVD respectively (Table 1).

Among those who underwent cesarean, 72% were elective (395 cases) and 22% were performed upon mother's request.

According to type of hospital, most mothers who requested cesarean (86%), attended private hospitals ($P<0.001$) (Table 2).

Using chi-square test, the majority of mothers who demanded elective cesarean had no scientific reason for their request, 71% of cases stated that it was due to fright of vaginal delivery (92% of this group) ($P<0.0001$). Also, 65% of elective cesareans performed due to doctor's order were done without any medical indications. In the group of elective cesarean sections with medical indication repeated cesarean comprised 73.5% of cesareans (Table 3). Using chi-square test, no significant relationship was found between rate of mother's request for elective cesarean and personal characteristics such as maternal age, age of marriage, level of education and occupation of husband, economic status, history of infertility, gestational age and problems related to

Table 1: Relative frequency distribution of causes of elective cesarean performed in Tehran

	n (%)
Mother's request	87 (22)
Doctor's order	85 (22)
Obstetrical indication	223 (56)
Total	395 (100)

pregnancy. A significant statistical relationship was found with the level of mother's education and occupation, and number of pregnancies. Mothers who were educated more than high school had a significantly higher request for elective cesarean (54% vs. 32%, $P<0.01$). In addition, demand for cesarean was higher among working mothers (30% vs. 20%, $P<0.05$) and primipara women (37% vs. 15%, $P<0.0001$).

Discussion

The incidence of cesarean section without medical indications is increasing in the United States of America (10). Also, there has been an increased rate of cesarean sections and mother's request for elective cesarean has become common among mothers with uncomplicated pregnancies (10). Ferriman (2000) mentioned the rate of cesarean in England was 2% in 1950, while it rose to 18% in 1997 and 20% in 2000; elective cesarean comprised half of these cases (11). WHO has announced the maximum cesarean rate according to medical indications to be around 15 % (1). However, in many societies, including Iran, the rate of cesarean is much higher, and in many cases scientific indications are not the criterion in performing cesarean, rather, unawareness, false beliefs and attitudes are factors involved in determining the mode of delivery. Statistical data from Iran show that the rate of cesarean ranges from 26% to 60% and even 87% in some reports (12, 13).

In the current study, also the rate of cesarean to was founded to be 66.5%, which reaches values up to 86% in private hospitals. In addition, according to our findings the rate of elective cesarean and mother's request were 72% and 22%, respectively, while according to a study performed by Johnson et al. (1986), 10% of cesarean performed by gynecologists was done upon mother's demand (14).

A study performed in London by Jackson et al (1988) showed that the frequency of elective cesarean was 9.1%, of which 38% were carried out on mother's request (15). In another study performed in Australia by Eftekhari (1999), elective cesarean rate was 10.6%, 14% of which was performed due to mother's request (16). Likewise, Belizan et al's study in 19 countries in Latin America (1999), showed that cesarean rate was between 16.8% and 40% and they believe that more than 850000 cesareans performed in Latin America every year are unnecessary (17).

In his study performed in Chile, Murry (2000) showed cesarean rate to be around 27%-28% in

public or teaching hospitals and 57%-83% in private hospitals (18).

Dobson (2001) believes that one in every 5 (21.5%) pregnant women in England and Ireland delivers by cesarean, while this value was only 4% thirty years ago. He also believes that during pregnancy at least 40 hours of counseling is required for a woman to make the right choice about the way she wants to give birth, however only 16% of pregnant women in England have access to this type of counseling. Dobson also indicated that around 20% of counselors preferred cesarean more than NVD themselves (19). Interestingly, many gynecologists have incorrect beliefs about choosing the best mode of delivery for themselves. This is elaborated by the study performed on gynecologists and midwives in London by Almufti et al (1997) in which 31% of this population preferred elective cesarean for their own delivery (20). According to the findings of our study, the majority (71%) of mothers demanded cesarean due to non-medical reasons, of these 92% are done to avoid labor pains and complications of NVD.

Quadros (2000) and Nuttall (2000) in two separate studies performed in Brazil, concluded that motivations for choosing cesarean include avoidance of labor pains, prevention of trauma to the fetus, preservation of coital function, and because cesarean is a more modern technique (8, 21).

Cesarean should be performed only when justified and in accordance with accepted medical indications. Considering reasons why doctors ordered elective cesarean, 65% of cases were unnecessary and were done without any medical indication. Nuttall (2000) also stated that the non-medical indications which motivate doctors to recommended elective cesarean include inexperience in dealing with complicated or difficult NVD as well as economic gains and pressures of private practice (21). Jackson et al (1998) reported that most (56%) cesareans were performed because they were repeat cases (15). Our results also indicated that 73.5% of cesarean cases were done because they were repeat sections. Today, however, many researchers believe that sole history of previous cesarean is by no means a convincing reason for repeating cesarean in future deliveries. In case of low transverse incision in the previous cesarean, and in the absence of current indications for performing cesarean, NVD could be performed by an experienced gynecologist with suitable facilities. It has

Table 2: Elective cesareans according to type of elective cesarean and type of hospital

	Mother's request n (%)	Other n (%)	Total n (%)
Public	12 (14)	135 (44)	147 (37)
Private	74 (86)	174 (56)	248 (63)
Total	86 (100)	309 (100)	395 (100)
	P<0.001	X ² = 25.459	Df = 1

been shown that in cases where NVD is performed after a previous cesarean, complications like uterine rupture are around 0.5%, which is not significantly higher when compared to other routes of delivery (15, 22, 23).

Considering the relationship between mother's prior obstetrical complications with the rate of demand for elective cesarean, our results show a statistically significant relationship between level of education, occupation and number of pregnancies with the rate of request for cesarean.

In his study on 2120 primigravid women in Tehran (1999), Garmaroodi showed a statistically significant relationship between the rate of cesarean and mothers' occupation, education, and socio-economic status. Researchers of this study believe that cesarean is the choice in families who can afford it, whether medical indications exist or not (12). Fisher et al (1995) believe that in addition to mother's personality, level of education and high economic or cultural status are factors which can predispose the mother to interfere with obstetrical decisions, including mode of delivery and her request for cesarean. Fisher and et al believes that this may be due to fright of the technique and inexperience of gynecologists dealing with NVD (24). Although some

studies, like those performed by Fisher and et al. (1995) (24), Garmaroodi (1999) (12) and Scott (1999) (4) show that good financial status and support is correlated with mother's request for elective cesarean, but we failed to find a statistically significant association in the current study. This may be due to the fact that our information about financial status, which was obtained through personal interview, is inaccurate. Many women avoided answering questions related to their family's financial status, and most (74%) mothers in our study stated that they came from families of moderate economic status. Like many other surgical operations, cesarean is associated with risks and complications for both mother and child. Maternal mortality rate has been reported to be eight-fold in elective cesarean as compared to NVD (19).

In contrary to this fact the demand for cesarean has been increased among mothers, their families, and even gynecologists and it seems that non-medical factors determine the mode of delivery and medical knowledge has been replaced by unawareness, false attitudes and misbeliefs.

Therefore, it is the duty of government authorities to provide suitable strategies, including family education and counseling, which are based on cultural and

Table 3: Obstetrical and medical reasons for performing elective Cesarean

Obstetrical Indication	n	%
Repeated Cesarean	164	73.5
Multiple pregnancy	16	7
Mal position	14	6
Pregnancy-induced hypertension	5	2
Previous cystocele or rectocele operation	5	2
Narrow pelvis	4	2
Cervical incompetence	3	1.5
Diabetes of pregnancy	3	1.5
Fetal distress	3	1.5
Failure to progression	2	1
Polyhydramnios	2	1
Septate uterus	1	0.5
Decreased Fetal movements	1	0.5
Total	223	100

scientific facts. In addition, conditions must be provided in which the mother could have painless NVD and the opportunity to deliver vaginally even after previous cesarean. In this way, probable complications related to cesarean will be limited, thereby taking an effective step toward improving maternal and child health. In order to reach this goal we propose the following:

Public knowledge and attitude toward cesarean should be changed and it should be based on scientific and medical indications. This is gained through first, increasing public knowledge especially pregnant women about cesarean and by overcoming scientific knowledge of doctors, especially gynecologists (1, 6, 7, 11, 25). All pregnant women should receive family counseling by trained personnel during their prenatal visits to help them choose the best mode of delivery. Health care personnel should be able to explain the risks and complications associated with different modes of delivery so that mothers could make the correct decision (15, 23). The rate of cesarean could be decreased 70%- 80% by increasing the level of knowledge and experience of the personnel and by improving facilities to perform safe NVD after previous cesarean section (16).

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