

Effect of standardizing prenatal care protocol on pregnancy outcome

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Abstract

BACKGROUND: The new maternal health care program has been designed in order to improve the quality of the current national program. Standard protocol along with the methods of physicians' and midwives' intervention clearly defined in this program. This study was carried out to examine the effectiveness of this program in terms of improving child birth, pregnancy indicators and solving related problems.

METHODS: The historical cohort study started in Ardestan since 2003 and continued until the midyear of 2005. Mothers who labored were randomly selected and categorized in two groups who received care based on the new program and who didn't receive care. A checklist was prepared for each subject using health files and hospital records. The collected data were analyzed by SPSS software.

RESULTS: The results showed that the frequency of caesarian section in two groups was the same. The frequency of L.B.W in group who received new care services was lower than the other group. Pregnancy age indicator at the time of delivery to determine the frequency of full term birth was promoted in first group. In case of stillbirth indicator, some improvements were seen in group who received new cares.

CONCLUSIONS: Preterm labor is one of the most prevalent problems in society resulted in immaturity and low weighted infants and high costs for families and government. Presenting compiled cares and providing appropriate services using the new guidelines can be effective to improve child birth indicators especially in reducing the number of preterm and still births.

KEY WORDS: Antenatal care, standards of predelivery care, pregnancy outcome.

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Pregnancy is a natural physiological phenomenon, but in 5-20 percent of cases may result in dangerous diseases which can threaten the health of mother and fetus. Pregnancy cares should be considered an essential tool to detect risk factors and then treat high risk patients.

Antenatal cares means trust on a delivery without side effects and birth of a healthy infant. The evidences proved that pregnancies which followed by some predelivery cares result in less side effects ⁽¹⁾. It was estimated that organized antenatal cares decrease fetal death to 40 percent. Not only the frequency of L.B.W will increase in pregnancies without care, but also caring their infants cause averagely great

expenses ⁽²⁾. The results of a study showed women who received antenatal cares, delivered less premature and low weighted infants ⁽³⁾.

Presenting pregnancy care services has begun from 1939 in Iran and availability to these services increased and facilitated by developing health and treatment centers after Islamic revolution. The first purpose of these centers was increasing the knowledge and demands of pregnant women and providing them more access to these services. This matter gradually resulted in presentation more services to mothers as nowadays 79.8 percent of mothers are included in pregnancy cares programs. At the beginning of 1999, the analysis of the program showed that thought presenting pri-

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mary health services to mothers have significantly improved their health status but its some deficiencies demand more reviews and corrections (4). These deficiencies involved lack of standard protocols to perform prenatal care, delivery and post delivery services in all aspects, lack of standard special protocols for high risked mothers, minor attention to disabilities derived from pregnancy side effects, no updated standard program, low intervention of employed physicians in health and treatment centers to present proper services to mothers, low attention to the health of fetus and infant in program (4). So, in a strategic planning framework, improvement of mothers' care program began and resulted in designing a program with the goal of an immunized mother and consolidated health cares for them all over the country. Experimental implementation of this plan began in Ardestan in 2001. General aim of this plan was to increase support and the quality and effectiveness of related cares of maternal health. Its specific aim was detection of at risk mothers on time and adequate treat according to standard protocols. To evaluate the effect of mentioned plan, its monitoring was carried out by assessing various indicators such as the effect of plan on knowledge, skill and motivation of the person who present services especially in diagnosis and treating high risked cases, recognition of the cases need to be referred, presenting proper affairs before and at the time of referring, training and advising some essential matters to mothers and their family. But besides this efficient and effective monitoring, lack of a comprehensive evaluating system to achieve the purposes can be felt. Regarding the important problems related to delivery indicators in Ardestan including high rate of cesarean (67 percent in 2002), low birth weight (8 percent in 2002), stillbirth (1.1 percent in 2002) and preterm labor (5), these indicators were examined in this study.

It seems doing this research along with implementing this plan can scientifically clarify the efficiency and effectiveness of the plan in

solving the problems and improving intended indicators and determine its circumstances.

Methods

This study was a historical cohort one. The studied population consisted of pregnant women who had pregnancy records between 2002 to 2003 in health and treatment centers and health houses. 200 person were selected using random sampling two groups of pregnant women who received cares based on new protocols and who received current care were enrolled in our study. Using sample size formula, (P value = 0.5, α = 0.005, $d=0.1$), the number of samples in every group were calculated 91 persons which estimated 100 regarding to existing cases of the study. The first group named "cared" and the second group entitled "not cared". Non-Iranian pregnant women, mothers who had abortion, pregnant women who did not know their L.M.P (last menstrual period), those who did not have sonography in the first three-month of their pregnancy, and also mothers who did not deliver in Ardestan hospital were excluded. The names of mothers who had pregnancy records in health and treatment centers, health bases of cities or health houses from 23.8.2001 to 23.1.2002 were listed, using the table of random numbers and the results of the ratio between urban and rural mothers to all pregnant women, we selected 60 urban and 40 rural pregnant women. This population was the sample of not cared group. Cared group was 100 women who referred to the same urban centers or health houses and had records (60 urban and 40 rural pregnant women) between 23.8.2002 to 23.1.2003 (beginning of the pilot). Data were collected by a check list. Reliability of checklist was proved according to the ideas of the members of scientific group of university. After selecting samples, checklist of data collecting was completed by the researcher based on the written data in every pregnancy file. Collected data in this study was analyzed

by SPSS soft ware, using statistical t and K² tests.

Results

In this study, 100 women who received new care services and 100 women who received current care services were assessed. The mean age of the first and second groups was 27.3 ± 5.43 and 27.46 ± 6.04 , respectively. The mean of the delivery numbers in the first and second groups was 1.98 ± 1.06 and 2.16 ± 1.58 . The mean of the age and delivery numbers had no significant statistical difference in two groups. The highest frequency of education level in both groups was below diploma (57% in cared group and 59% in not cared group) and the lowest frequency in both groups was illiterate (2 percent in both groups). The existed difference was not statistically significant ($P > 0.05$). The findings showed that in cared and not cared group, most of the women were cared by gynecologist (89% and 70% respectively); women cared by midwives and whom cared by graduated staffs of family health had the lowest frequency (28% and 34% in cared and not cared groups, respectively). The existed difference had no significant statistical difference ($P > 0.05$).

The findings showed that the frequency of cesarean and normal deliveries was 52% and 48% in cared and not cared groups, respectively. Frequency of L.B.W infants in mothers who received and who did not receive care services was 4% and 5%, respectively. Regarding the number of samples and using statistical K²-test, no significant statistical difference was seen between two groups ($p = 0.5$). The results showed 1 percent of stillbirth in not cared group while no cases was observed in cared group and the existed difference was not statistically significant ($P > 0.05$). Also, in women who did not receive cares the frequency of gestational age below 38 weeks (prematurity) was 17%, meanwhile in women who receive cares, it was 3%. The existed difference was statistically significant ($P < 0.00097$) (Table 1).

Table 1. The frequency of evaluating indicators of pregnancy outcome in women received or did not receive cares in Ardestan in 2003-2004

Group Indicator	Received Cares (%)*	Did not receive Cares (%)*	P value
Delivery before 38 weeks	3	17	< 0.00097
Cesarean	52	52	1
Stillbirth	0	1	0.5
L.B.W	4	5	0.5

* Cared and not cared means receiving cares based on new plan of consolidated health cares of mothers.

Discussion

The results of this study clarified the positive effect of standardizing antenatal care services on cesarean rate, stillbirth and preterm labor. According to the findings, the percent of preterm labor in group who received cares decreased (significantly) rather than those who did not receive care services. Improvement of this indicator (preterm labor) might be derived from presenting standard maternal care services. Using standard protocols of the program and clarifying the intervention level of employed physicians and midwives in system especially related to mothers who needed special care caused diagnosis of high risked and low risked pregnant women through first visiting. By getting comprehensive history of them and based on compiled instruction in this program which was given to all peripheral ranks as a booklet chart, presenting services by physician or midwife of the center will develop gradually. Regard to dividing training plan according to pregnancy weeks and identifying precise content of trainings, high risked women received necessary advices. Though in this study the rate of L.B.W and stillbirth infants was below 1 percent in group who received cares but this difference was not statistically significant. So, this case might be resulted from a few numbers of studied samples (and also other factors). In this study, the frequency of cesarean was completely the same in both groups. Since, Ardestan has a gynecologist who worked

there before and after implementation of the plan and regarding that the most important decision maker in selecting the kind of delivery is the gynecologist, so this equivalence was justifiable ⁽⁶⁾. The results of the study related to the frequency distribution of age in studied samples showed concordance with frequency distribution of age in society. 19 percent of pregnant women were below 20 and over 35 years old (high risked pregnancy) in both groups that demanded more focuses and necessity of more presentation of family planning services. Frequency distribution of educational level in women who received care services and who did not receive them was also representative of this distribution in society ⁽⁷⁾.

According to our results most of the time prenatal care services was presented by a gynecologist (89% and 70% of women in cared and not cared groups respectively). As an interesting point, most of the women referred to gynecologist, have received care from health aids, graduated staffs, and midwives. Though referring rate to gynecologist in both groups had not statistical significant difference but the increase of these cases in group who

received cares was more than who did not receive cares and it derived from great sensitizing of women because of presenting more complete information about dangerous cases or more referring to ranks. Some deficiencies of referring system in health organization of country especially in high risked women caused ineffective outcomes of services and cause some problems result in mortality of mothers and infants besides presentation of complete services by health personnel and receiving feedback from professional levels. So, all changes result in complete presentation of services and using precise presented protocols in new cares program can reform this imperfect function.

Suggestions: Regarding to positive effect of these cares in improvement of some delivery indicators, it is suggested that standard maternal care services should be combined with health and treatment system of country. Considering the limited number of pregnant women in Ardestan and a few numbers of samples, it is advised to perform another study with more samples to examine other pregnancy indicators.

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