MATERNAL AND NEONATAL OUTCOME IN TEENAGE PREGNANCY IN TEHRAN VALIASR HOSPITAL

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Abstract: ***Among 2357 pregnant women at Tehran Valiasr hospital, 99 women under 18 years with their 102 neonates were evaluated retrospectively during April 1999 to April 2000. Frequency of adolescent pregnancy was detected in 41.5 per 1000 live birth. 7 (7.1%) of mothers had preeclampsia, 7 thyroidal diseases, 3 valvular heart diseases, 2 urinary tract infections and 20.3% of women had prolonged rupture of membrane (more than 24 hrs). The route of delivery in 21.2% of women was cesarean section. 32% of neonates were low birth weight and the gestational age in 38.2% of neonates was lower than 37 weeks. Intrauterine growth retardation was detected in 11.8% of patients. 38.2% of babies were admitted into neonatal care unit. Perinatal resuscitation and ventilator care were needed in 9.8% and 3.9% of neonates respectively. Neonatal mortality occurred in 6.9% of patients. Compared with total deliveries the frequency of variables was higher than could be expected except for cesarean section. Our adolescent pregnancy rate is lower than worldwide range but rates for prematurity and low birth weight are the same as other reports from developed and developing countries. Frequency of cesarean section was lower than expected range in this group as in developed countries.***

With respect to higher rates for rheumatic heart disease, premature labor, prolonged rupture of membrane and low birth weight, it seems that lower socioeconomic factors may result in these adverse outcomes.

Higher neonatal ICU admissions, artificial ventilation and resuscitation in adolescent pregnancies suggest that confinement in hospitals with level III nurseries is advisable in these high risk group.

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Key words: ***Adolescence pregnancy, low birth weight, prematurity, neonatal complication, maternal complication.***

INTRODUCTION

Maternal age, parity, social class and ethnicity are interrelating and interacting sociodemographic factors that influence maternal health and childbearing (1). Approximately 10% of all births occur in teenage mothers worldwide. This phenomenon is of concern because teenager mothers are reported to be disadvantaged financially, educationally and cognitively in both the short and long term (2). The incidence of teenage pregnancy shows marked variation, between developed countries. The lowest teenage pregnancy rates are found in the Netherlands (14 per 1000 among 15-to 19-year olds), whereas in Sweden, England and Wales combined they are considerably higher (35 and 44 per 1000, respectively). The highest rates are found in the USA (96 per 1000) (1).

Analysis in a global view in 43 developing countries showed substantial declines in adolescent fertility in North Africa and Asia, but levels are still high in some countries. Declines are beginning to occur in sub-Saharan Africa, but current levels are still high in most countries of this region, and the population of births to unmarried adolescents is increasing in some countries. In Latin America, where the level of teenage childbearing is moderate, declines are less prevalent and some small increases have occurred. Higher education is associated with lower rates of adolescent childbearing, but other socioeconomic changes cancel or reduce this effect in several countries (3).

These women are also at particular risk of nutritional deficiencies and sexually transmitted diseases. Medical complications associated with adolescent pregnancy include anemia, urinary tract infection, hypertension, preterm labor, and low birth weight, a higher analgesia requirement, operative assistance during labor, and short interval to next pregnancy and sudden infant death syndrome. Reports on complications of pregnancy in young girls are contradictory and difficult to interpret because of confounding effects of adverse social circumstances and poor attendance for antenatal care (1).

With respect to different culture and socioeconomic status and ethnicity prevailing in our country, the frequency of teenage pregnancy and associated complications were determined and the obtained data were compared with other countries.

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MATERIALS AND METHODS

Pregnant women with ages lower than 18 were studied retrospectively during the year 1999 to 2000 at Tehran Valiasr hospital. In this descriptive study maternal and neonatal factors and related complications like maternal age, gestational age, route of delivery, presentation of the fetus, and their underlying diseases, duration of rupture of membrane until delivery, intrauterine fetal demises, neonatal weight, needs for resuscitation and artificial ventilation in infants, duration of hospitalization, death of infants were evaluated. The data were analyzed and compared with our total deliveries and also with other reports obtained from developing and developed countries.

RESULTS

Among 2357 pregnant women at this hospital, 99 cases were under the age of 18 years. These women with their 102 neonates were entered into the study. Frequency of adolescent pregnancy was detected in 41.5 per 1000 live birth (4%).

The ages of the mothers were between 15 to 18 with a mean of 17.4±0.85.

Seven (7.1%) of mothers had preeclampsia, 7 had thyroidal diseases, 3 had valvular heart diseases, 2 had urinary tract infections and 20.3% of women had prolonged rupture of membrane (more than 24 hrs).

The route of delivery in 21.2% of women was cesarean section. The fetal presentation in 88 cases (88.9%) was cephalic and in 8.1% was breech. Intrauterine fetal demises were seen in 5 fetuses (4.9%). 32% of neonates were under 2500 g and the rest were more than 2500 grams with a mean of 2731.4±679.5. Gestational age of infants was between 20 to 45 weeks with a mean of 38 weeks. 38.2% of infants were under 37 weeks. Intrauterine growth retardation was detected in 11.8% of patients.

38.2% of babies were admitted into the neonatal care unit. Perinatal resuscitation and ventilator care were needed in 9.8% and 3.9% of neonates respectively. Multiple gestations were seen in 3% of babies. Neonatal mortality occurred in 6.9% of patients. Complications of teenage pregnancies were higher than total deliveries (Table 1).

Table 1. Neonatal complications in Tehran Valiasr Hospital

Neonatal complications	Total deliveries 2375 cases	Teenage pregnancies 102 cases	Odds ratio	P value
Low birth weight	**16%**	**32%**	**2.4**	0.000
Prematurity	**13%**	**39%**	**4.31**	0.000
IUGR[8]	**5.5%**	**12%**	**2.3**	0.000
Mortality	4.2%	6.9%	1.68	0.287

IUGR: Intrauterine growth retardation

DISCUSSION

The health and well being of adolescents is closely linked with their physical, physiological and social development but this is put at risk by sexual and reproductive health hazards, which are increasing world-wide.

Changes in population growth and distribution, the rise of telecommunications, the increase in travel and a decline in the family members as well as a generally earlier start of menarche and later age of marriage are contributing to an increase in unprotected sexual relations before marriage. More than half the world's population below the age of 25 and 4 out of 5 young people living in developing countries have inadequate access to prevention and care, that requires a dire and appropriate action. Mortality and morbidity from early pregnancy whether ending in childbirth or abortion is much higher in the younger adolescents. Young women especially those who have less formal education are more vulnerable to pressures for marriage or sexual relations before marriage often with older men. Young people generally lack adequate knowledge about their own development and information as to how and when to seek help. Those who could help are rarely trained for working with adolescents and services, which are generally designed for adults, or children often deter young people from getting help when they most need it. Policy and legislation relating to sexual and reproductive health issues are often contradictory and unclear or unenforced (4).

In the developed countries while there is a positive relationship between reproductive maturation and subsequent reproductive behavior the negative effects of young maternal age on pregnancy outcome is confounded with socioeconomic factors. Teenage pregnancy or at least teenage birth occurs disproportionately among the socially and economically disadvantaged class of society. In developing countries the situation is quite different. First early marriage and childbearing are desired and common across most segments of society. Second malnutrition is widespread and is sufficiently severe to delay the

adolescent growth spurt and rise average age at menarche by two to three years compared with scales found in developed countries (5).

Teenage pregnancies are mainly associated with social problems rather than physical or medical problems. A considerable proportion of teenager mothers originate from working-class families and ethnic minorities. Many are themselves the off springs of teenage or very young parents. In Western countries, the majority of teenage pregnancies are unplanned and unwanted, Consequently abortion rates among adolescent women are quite high, ranging from 30 to 60% of all confirmed pregnancies in that group age. Typically, cigarette smoking, alcohol consumption and illicit drug usage are common among pregnant adolescents (1).

It is interesting that the characteristics of babies' fathers whose mothers are adolescent are also unique. These men have a lower level of education, a greater age discrepancy between themselves and the mothers, a greater unemployment rate, less financial independence, more smoking, drinking and drug abuse, less supportive attitude toward pregnancy, poorer attendance at childbirth, less provision of postpartum care for mothers and infants (6).

In developing countries over 50% of pregnant women suffer from iron deficiency anemia. It is also prevalent among adolescent girls because the growth spurt and onset of menstruation increase iron requirements. Iron supplementation during adolescence is one of the new strategies advocated to improve iron balance in pregnancy (7).

A metaanalysis was undertaken using the published literature. An increased risk of preterm delivery was associated with young maternal age in both developed and developing countries. In the developed world, risk of cesarean delivery was reduced for teenagers and there was a secular decline in maternal anemia and pregnancy-induced hypertension in comparison to the risk sustained by more mature women. In the developing countries teenagers were at increased risk of maternal anemia, preterm and cesarean delivery. The published data suggest that prenatal care regimens, which provide social and behavioral services along with medical care, could both improve the health of the mother and the outcome of her pregnancy (8).

In our study the frequency of adolescent pregnancy was lower than worldwide range. The frequency of prematurity was 39%, which was higher than the frequency of prematurity in our total deliveries during 1999-2000 (Table 1). In the United States, the prematurity rate is approximately 6-10%, whereas in Europe it varies from 5-7%. Risk factors of prematurity are race, age of mother under 17 and above 35 years, less education, low socioeconomic status, behavioral factors, nutritional status, either poor or excessive weight gain, smoking, use of cocaine, degree of physical activity during pregnancy, previous preterm delivery, second trimester abortion, uterine malformation, history of diethylstilbestrol exposure, uterine anomalies, myoma of uterus, cervical incompetence, multiple gestation, third trimester bleeding, olygohydramnious, polyhydramnious, fetal anomalies, maternal abdominal surgery, hypertension, diabetes in mother, asymptomatic bacteriurea (9).

32% of our neonates were low birth weight, which was about 2-3 times higher than our annual rate for low birth weight (Table 1).

It has been suggested that competition for nutrients between the fetus and the mother could affect pregnancy outcome in young pregnant girls by interrupting the normal growth process. However, contrary to common belief biological immaturity does not affect appreciably the reproductive performance of young teenagers in terms of length of labor and route of delivery (1).

Intrauterine growth retardation was seen in 12% of our neonates, which was higher than the rate in our total deliveries at the same year (5.5%).

According to WHO, incidence or intrauterine growth retardation (IUGR) in developing countries is about 11% (10) and in some countries like India the incidence of IUGR in adolescent pregnancy was 27.5% (11).

Higher rates for low birth weight (LBW) have been reported from Taiwan, Brazil, Nigeria, Saudi Arabia, but not nessecerily in combination with higher rate for prematurity (12,13,14,15). Cesarean section was performed in 21.1% of women in our study, which was lower than expected range in our hospital, which was about 40% of deliveries. In Western countries, cesarean section is performed in 10-25% of deliveries (16). Frequency of breech presentation is related to gestational age of fetus and in our study it was seen in 8% of cases, which expectedly could be related to the higher rate of prematurity. This type of presentation is seen in 2.2-3.7% of term neonate (17).

NICU admissions, artificial ventilation and perinatal resuscitation in a significant number of neonates in our study showed that confinement is better to take place in hospitals with level III nurseries in adolescent pregnancies.

Infant mortality in our study was about 6.9% which was more than the total rate of 4.2% at the same year.

Frequency of prolonged rupture of membrane (PROM) in total deliveries in our hospital at the same

year was about 3%, but in this study we detected PROM in 20.3% of women.

Prepregnancy counseling has a limited role in the management of premature rupture of membranes, particularly preterm premature rupture of membrane (PROM), because in the vast majority of cases the cause is unknown. In this situation the only independent risk factor, which might be amenable to prepregnancy intervention, were cigarette smoking and the risk appears to be dose-related. Other less constant associations, which might be amenable to intervention include cocaine abuse, intrauterine diethylstilboestrol exposed women, and possibly nutritional deficiencies of ascorbic acid, copper, zinc and iron. With respect to our higher rates, for PROM and prematurity, nutritional deficiencies may have a relative role in outcome and supplementation of related agents can improve the pregnancy outcome.

It seems that the provision and utilization of health care services is beneficial to both mother and child, although it is not clear which aspects of antenatal care exert a positive effect. Over 50% of women younger than 18 years of age do not receive prenatal care until the second trimester of pregnancy and an estimated 2% have no prenatal care at all. Routine ultrasonography during early pregnancy is advisable to confirm gestational age. Furthermore, timely identification of other specific risk factors is important. Strategies for intervention should be focused on individual medical and social risk factors, in particular poor nutritional status, adverse health habits and perceived isolation. Special arrangement for ongoing education may be necessary for pregnant teenagers still at school. Infant feeding practices, infant growth and safety should be reviewed. Symptoms of medical problems in the infant need to be considered. Teenage girls should be encouraged to continue secondary education along with implementation of effective contraception (1).

In conclusion this study showed that our adolescent pregnancy rate was lower than worldwide, range some results such as higher rates for prematurity and LBW are similar to the reports from developed and developing countries. Like developed countries the frequency of cesarean section was lower than expected range.

With respect to higher rate socioeconomic factors affected these adverse outcomes, higher needs for NICU admission, artificial ventilation and resuscitation in this study suggest that confinement in hospitals with level III nurseries is advisible.

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