Characteristics of Perinatal Infection and Pregnancy Outcome of Roma and Romanian Women

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Abstract: Introduction: The Roma are the second largest ethnic minority in Romania, the most socially and economically disadvantaged minority. There is a lack of studies on perinatal infection in Roma women. The study aimed at determining the prevalence of perinatal infection and comparing pregnancy outcome in Roma and Romanian pregnant women. Materials and methods: In this prospective study total of 252 pregnant women were enrolled from August 1, 2012 to October 2013 at a tertiary care hospital in Targu-Mures, Romania. Women were screened for bacterial carriage on admission for premature rupture of membranes and delivery. Insemination sample were collected from maternal cervix. Risk factors for colonization were collected by a questionnaire, coupled with data from an existing database. Results: The average age of Roma patient was 22, respectively 28 of the control group. There were more teenage pregnancies in the Roma group, Romanian women delivered more frequently after age 35. There was a significant difference in socioeconomic status of the two groups. Roma women had less hypertension, gestational diabetes and obesity, more induced abortion, preterm deliveries and grand multiparity. The prevalence of negative test result in the Roma and the control group were 75 % and 81 %, respectively \( (p = 0.718) \). Conclusion: However the majority of Roma women had a low socioeconomic status with deficient pregnancy follow up, significant differences between the groups in the rates of the perinatal infection were not observed. Further clinical trials are needed to confirm these findings.

Key words: Perinatal Infection, Roma and Romanian women.

1. Introduction

The Roma people (Romanies, Gypsies, of northern Indian origin) are the most important ethnic minority in Central and Eastern Europe. It has been known for a long time that the socioeconomic conditions of most Roma people in Central and Eastern Europe are worse than those of the general population, and it has been suspected that their health follows a similar pattern.

There is a sizable minority of Romani people in Romania of 619,000 people or 3.2% of the total population (2011 census). The Roma is the most socially disadvantaged minority group in Romania, even though there are a variety of governmental and non-governmental programs for integration and social advancement. Being a gypsy the worst social stigma in Romania [1].

During pregnancy, normal vaginal microbiota, which consists primarily of lactobacilli, is substituted by anaerobic bacteria such as Gardnerella vaginalis and Mycoplasma homini, resulting in a significant reduction in lactobacilli and increased pH (greater than 4.5).

Pregnant women and their fetuses are at increased risk of complications of viral, bacterial, and parasitic infections. Maternal infection is associated with birth defects as well as adverse pregnancy outcomes, such as intrauterine growth restriction and preterm birth and developmental disabilities [2].

There is a lack of studies on perinatal infection in Roma women. The study aimed at determining the prevalence of perinatal infection and comparing pregnancy outcome in Roma and Romanian pregnant women.

2. Materials and Methods

This prospective observation study was carried out
at the Clinics of Obstetrics and Gynecology, Emergency Clinical County Hospital of Targu Mures Romania and Clinic of Obstetrics and Gynecology, Hospital University of Pecs, Hungary, between August 1, 2012, and December 31, 2013.

Clinics of Obstetrics and Gynecology of Targu-Mures is a tertiary care university hospital, where 2000 women deliver annually.

Total of 252 pregnant women were enrolled divided into two groups: 70 Roma women and 182 Romanian women (control group). The study included women who: delivered at the Maternity Units of University of Pecs between May and July 2013 and women with premature rupture of membrane and delivery in Hospital of Targu Mures.

Women were screened for bacterial carriage on admission for premature rupture of membranes (all before 37 week gestation and more than 12 hour after 37 weeks) and delivery. Microbiological swab samples (without washing the external genitals) were obtained from the maternal cervix. Swabs were immediately placed in the Stuart transport medium and sent within 24 hours to the laboratory.

Identification of Risk Factors: All of the women were personally interviewed by me, and they were included in the study after signing documentation of informed consent.

Each patient underwent a gynecological exam, and cervix samples were taken for microbiological study.

On the day of the sampling, the patients filled out the questionnaires designed by the authors of this study, covering the patients’ social and demographic status, lifestyle, personal hygiene, the course of previous pregnancies and deliveries, pregnancy follow up and previous diseases, coupled with data from an existing database. Ethnicity was categorized with self reporting.

The study was initiated with the permission of Bioethics Committee of University of Medicine and Pharmacy of Targu-Mures.

3. Results

In total, 252 women were included into the study. The mean age of Roma patient was 22, respectively 28 of the control group. Distribution by ethnicity was 73 % Romanian and 27 % Roma.

There were more teenage pregnancies in the Roma group, Romanian women delivered more frequently after age 35.

The majority of the Roma women were without education (30 %) and the level of education was lower (Fig. 1).

There was a significant difference in socioeconomic status of the two groups.

18 % of the Roma patient and 8 % of the Romanian women did not attend prenatal care during pregnancy (Fig. 2). The remaining subjects attended prenatal consultations, on the average, 5.4 times.

![Level of education](image)

**Fig. 1** Level of education.
More than 43% of the Roma women smoked up to 10 cigarettes per day during pregnancy; and 4% of Romanian women. In total 2% of women reported that they used vodka, wine, or beer during pregnancy.

Roma pregnant women had less gestational hypertension, gestational diabetes but more grand multiparity. The average child number at Roma patient was 3 and in control group 2 (Figs. 3 and 4).

Roma women had no pregnancies after artificial reproductive technology. Artificial reproductive technology rate was 5% at Romanian patient. Roma women demonstrated more spontaneous and induced abortion rate (Fig. 5).

There was no difference for type of delivery. Romanian women had more instrumental vaginal delivery and epidural anesthesia (Fig. 6).

Samples for bacterial carriage were obtained, on the average, at 40 weeks of pregnancy (between 26 and 42 weeks).
weeks), samples were obtained due to premature rupture of the amniotic membranes or during delivery (Fig. 7).

The prevalence of negative test result in the Roma and the control group were 75 % and 81 %, respectively.

Negative PAP test HIV, Hepatitis and Siphylis result in two group.

The Apgar score of the neonates at 1 and 5 minutes after birth was 8.8, 9.8 respectively.

The mean birth weight was 3167 g; in 37% of neonates in Roma group and 12 % of Romanian group, the birth weight was less than 2500 g (Fig. 8).

Romanian women had more babies with a birth
weight above 4500 g.

Birth occurred, on the average, on term (in 10% of cases of Roma patient and 4% of cases of Romanian patient, on the 24nd-3st week of gestation, and in 19% and 6% of cases, on the 32nd-36th week of gestation).

The proportions of preterm births were 29% and 10% respectively.

4. Discussion

To our knowledge, there is a lack of work to identify the prevalence of bacterial infection and colonization among Roma pregnant women, and risk factors for

**Fig. 6** Vaginal birth.

**Fig. 7** Result of inoculation.
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Fig. 8 Birth weight.

- Smoking before and during pregnancy was considerably more common in Roma women. Alcohol consumption, on the other hand, was not more common in Roma mothers, and cannot therefore be implicated in their poor pregnancy outcomes.

- According to several studies, vaginal E.coli colonization is detected in 7%-13% of pregnant women [3]. Thus, the prevalence of vaginal E.coli colonization before delivery, reported in our study (3% respectively 6%), was lower than that detected in other studies.

- Differences in the prevalence of GBS were not observed between Roma (13%) and Romanian women (13%), which is in agreement with the results obtained by other researchers, who demonstrated that GBS colonization occurred in 5%-35% of women during pregnancy. The rate of GBS colonization is dependent on sociocultural and geographical variables, the site and time of sampling, and the bacteriological methodology used to identify GBS [4].

- However, the Roma population is characterized by a low educational level and high unemployment rate, our results failed to show an association between sociodemographic variables and the prevalence of bacterial colonization.

- Despite the fact that several risk factors can affect the occurrence of perinatal infections, such as maternal age, conjugal status, race, and smoking, except of age, significant correlations between these factors and bacterial infection prevalence were not observed in the present study.

- Data from Bulgaria, Hungary, Czech Republic and Slovakia indicate that abortions, low birth weight and premature birth are more common in Roma than non-Roma populations.

- Our study confirms these findings [5]

- These findings may be explained by both better hygiene habits of better educated employed women and by them taking better care of their own health, resulting in better observation during pregnancy.

5. Conclusions

Worse birth outcomes (shorter gestation length,
lower birth weight) among Roma in comparison with non-Roma mothers were confirmed.

Maternal education made by far the largest single contribution to explaining the poor birth outcomes in Roma mothers. This is not surprising, because there were huge differences in educational attainment between Roma and non-Roma mothers in this study. Reproductive history, indicated by the number of pregnancies, is also associated with social status.

However the majority of Roma people had a low socioeconomic status with deficient pregnancy follow up, significant differences between the groups in the rates of the perinatal infection were not observed. Further clinical trials are needed to confirm these findings.

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References


