

Risk Factors Individual and Complex impact on Preterm Birth

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The scientific novelty of the study

According to 2018 population database of “Birth Registry”:

- First time, the exploration of different exposures in pregnant’s full population of Georgia was performed and statistically reliable risk factors were assessed;
- First time, the coefficient of preterm birth per 1000 newborn according the regions of Georgia was calculated;
- The exploration of women with ≥ 4 antenatal care visits and with inducted abortion in anamnesis related to age, education, nationality, gravidae and region was conducted;
- According to newborns` BMI from 2018 database, the biomedical, behavioral and social factors` stratification analysis were held.

Key words: Preterm Birth: Population Based registry: Risk factors.

რისკის ფაქტორების ინდივიდუალური და კომპლექსური გავლენა ნაადრევ მშობიარობაზე

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კვლევის სამეცნიერო სიახლე

დაბადების რეგისტრის 2018 წლის მონაცემების ანალიზის საფუძველზე:

- პირველად განხორციელდა საქართველოს ორსულ ქალთა პოპულაციაში ნაადრევი მშობიარობის სხვადასხვა რისკის ფაქტორების შესწავლა და განისაზღვრა სტატისტიკურად სარწმუნო რისკის ფაქტორების ოდენობები;
- პირველად გამოითვალა საქართველოს რეგიონების მიხედვით ნაადრევი მშობიარობის კოეფიციენტი ყოველ 1000 ახალშობილზე;
- განხორციელდა ≥ 4 ანტენატალური ვიზიტების მქონე და ანამნეზში ხელოვნური აბორტების მქონე ორსულების ექსპლორაცია ასაკის, განათლების სტატუსის, ეროვნების, გრავიდას, რეგიონის მიხედვით;
- 2018 წლის ახალშობილთა სხეულის მასის ინდექსის (სმი) მიხედვით განხორციელდა ორსულთა ბიოსამედიცინო, ქცევითი და სოციალური ფაქტორების სტრატეგიული ანალიზი.

საკვანძო სიტყვები: ნაადრევი მშობიარობა, პოპულაციური რეგისტრი, რისკის ფაქტორები.

Risk Factors' Individual and Complex Impact on Preterm Birth Research Component

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Methodology

Difference Between Risk Indicators Derived from Mentel Haenzel Stratification Test and Logistic Regression

Target

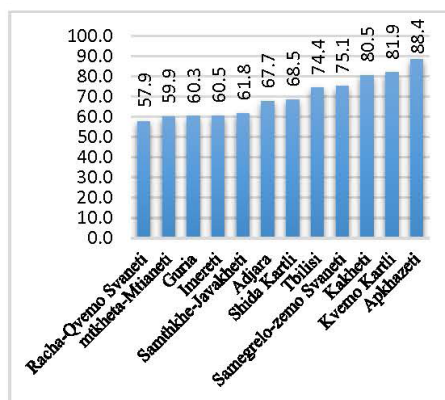
The study was conducted using data of birth registry, which, in itself includes potential variables of preterm birth. The study was conducted from database 2018 for full (n=49762) single-fetus pregnant women population.

Following expositions were linked to outcomes: Biomedical factors of newborns and pregnant woman; Social status of a pregnant woman; Factors defining healthy lifestyle. The statistical analysis was made via SPSS ver. 24 software. Except a significant distribution of variables, until the final statistical model's analyze, the presumable risk factor's impact on target variable was assessed by method (Mentel Haenzel test) excluding the influence of other factors (Confounder). An outcome interesting for the research was split into two sub-variable: preterm birth: yes/no, thus, coming out from dichotomic categorization, data analysis was made by Logistic Regression.

Variable	M-H OR (95% CI)	ADJUSTED OR (95% CI)
Newborn sex (female)	1.0	1.0
Newborn sex (male)	1.1 (1.0-1.2)	1.3 (1.2-1.5)
Newborn weight (>2500 gr)	1.0	1.0
Newborn weight (<2500 gr)	84.8 (76.9-93.5)	74.4 (64.4-86.2)
Pregnant woman's age 20-35	1.0	1.0
Pregnant woman's age <18	1.5 (1.1-2.0)	1.8 (1.0-3.2)
Pregnant woman's age >35	1.9 (1.7-2.0)	1.4 (1.2-1.7)
BMI difference during pregnancy (5-7)	1.00	1.00
BMI difference during pregnancy (<5)	1.8 (1.68-1.9)	1.3 (1.1-1.5)
Severe anemia during pregnancy (no)	1.0	1.0
Severe anemia during pregnancy (yes)	2.3 (1.2-4.3)	4.0 (1.6-9.7)
Diabetes mellitus during pregnancy (no)	1.0	1.0
Diabetes mellitus during pregnancy (yes)	2.6 (1.1-6.2)	12.6 (4.06-39.5)
Indicated abortion in previous pregnancies (no)	1.0	1.0
Indicated abortion in previous pregnancies (yes)	1.5 (1.4-1.7)	1.5 (1.3-1.8)
Antenatal visits (>4)	1.0	1.00
Antenatal visits (≤4)	2.5 (2.3-2.7)	1.8 (1.6-2.1)

Under the public health point, the urgency of preterm birth related to health of mother and the child let to basis of submitted scientific study. Based on "electronic module of supervision of health of pregnant and newborns" or so-called "birth registry" aim was to generate new and fuller body of knowledge by evaluating biomedical, sociological and lifestyle risk factors of preterm birth; to explore risk groups for Georgian population based on such knowledge and analysis; develop recommendations for effective preventive activities; improve approach and support to effective implementation.

Preterm Birth per 1000 One Fetus Newborn (Georgia 2018)



Results

The study has partially repeated the results of other studies conducted in other countries and has showed, that preterm birth constitutes the phenomenon caused by numerous factors and is related to social-demographic, biomedical and environmental terms, also to terms connected to healthy conduct. The connection to the combinations of these terms with interesting outcome is not completely clarified. Though, it is obvious, that their particular or combined action changes the frequency of prematurely finished childbirth.

Stages of Study Methodology

Descriptive analysis

Chi² test

Mantel-Haenszel stratification test

Logistic Regression analysis

Population revision for statistically significant factors