

## KRAHASIMI I PARAMETRAVE DIAGNOSTIKUES TE URINES SE FEMRAVE SHTATZENA DHE JOSHTATZENA THE COMPARISON OF THE DIAGNOSTIC PARAMETERS OF THE URINE BETWEEN PREGNANT AND NOT PREGNANT WOMEN.

BAKAJ (ÇIZMJA) AURORA<sup>a\*</sup>, LIKA (ÇEKANI) MIRELA<sup>b</sup>, TORBA DHURATA<sup>c</sup>

<sup>a\*</sup> Medicom University Colleges, Vlora; L. 1 Maj, Rr. Miss Durhan Nr 32, ALBANIA

email: aurorabakaj@yahoo.com

<sup>b</sup> Department of Biology, University of Tirana, Faculty of Natural Sciences, Boulevardi Zogu I, ALBANIA

<sup>c</sup> Public Health Institute "Hulo Hajdëri", Tirana Rr. Alexander Mojsiu, ALBANIA

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### SUMMARY

In this study there have been examined the urines of 155 women. Diagnosis of urinary parameters is necessary for pregnant and not pregnant women. The variation of urinary parameters might have consequences, especially in pregnancy. The female urine parameters are indicators for the normal function of the kidneys and the hormonal mechanisms. We have diagnosed the urine parameters in 75 pregnant women and 80 not pregnant women in the cities of Tirana and Berat. We realized the determination of: glucose, bilirubin, urobilinogen, ketones, blood in urine, protein, nitrites, leukocytes, urinary pH and specific weight. The percentage of glucose in pregnant women has resulted in 2.67%, while in non-pregnant women 10% distributed by age group. The material was collected in sterile urine cups. The collected material, was processed based on evidence to beakers or microscope preparations. Under the 5 group-ages, the largest percentages were engaged: for pregnant women by the 26-30 group-age, and for not pregnant women by the 15-20 group-age.

**Key words:** glucose, bilirubin, urobilinogen, urinary pH, protein, bilirubinuri.

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### INTRODUCTION

Under normal conditions water stool is adjusted separately from the salts excrements. This means that the kidneys can defecate hypo-osmotic or hyper-osmotic urine, in relation to plasma (1,3,5,6).

The plasma activity is increased around 4 to 5 times, in women with a normal pregnancy, compared to not pregnant women.

The same thing happens with anghyotensine. These increased values remain such until the end of pregnancy and decrease rapidly at due time. Also the production of prostaglandins, particularly PGE<sub>2</sub>, is significantly increased (4,6,7).

These hormones are produced by the kidneys and the placenta. It seems that they control in a large amount both the maternal arterial pressure and the arterial flow that passes through the placenta.

Changes also occur with other hormones such as estrogens, which are hormones of carrier action for Na<sup>+</sup> independent of mineralo-corticoides. The main fabrication places of these hormones during pregnancy are the fetal adrenal glands (8,10).

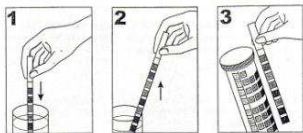
Estrogens strongly encourage the synthesis and plasma activity of renine.

The main estrogens that are isolated in the urine of pregnant women are: estrone, estradiol and estriol. Changes are also observed in other

hormonal systems such as progesterone, aldosterone, prostaglandins (2, 8, 9) etc. Objectives of the study are: the study of physiological mechanisms and renal physiology; the impact of pregnancy on the kidneys and body's balances during pregnancy; the determination of ten urinary parameters in pregnant and not pregnant women and the comparison of the urinary parameters among pregnant women and those not pregnant in the cities of Tirana and Berat.

**MATERIAL AND METHOD**

The first urine of the morning of 155 pregnant women hospitalized and not pregnant women from the cities of Berat and Tirana, was collected (75 pregnant women and 80 not pregnant women). All material was collected in urine sterile cups.



1. Soaking
2. elimination of excess uric
3. reading for 60 seconds

Fig.1. Schematic representation of the working test during the examination of the urine tract.

The material collected was processed in tubes or in preparations for the microscope, on the basis of evidences.

The material was processed by means of pipettes or strip (2, 3, 5).

Material processing was carried out at the Department of Epidemiology of the Public Health Institute "Hulo Hajdëri", as well as at the Microbiological Laboratory of Obstetrics and Gynecological Hospital in Berat, according to methods previously defined by us.

Thus was accomplished: determination of glucose, bilirubin, urobilinogen, ketones, blood in urine, protein, nitrites, leukocyte, urinary pH and the determination of specific weight.

**IMPLEMENTATION AND DISCUSSION**

All pregnancies have their impact on the kidneys and the overall urinary apparatus.

Functional and anatomical adaptations that follow in this case, are obligatory aftermaths of a profound physiological change of pregnancy in general.

The kidney is a significantly exposed organ to a series of injuries, whether they are foreign - especially contaminous, or internal, thus leading sometimes to a condition of the pregnancy called toxemia.

Starting from the fifth and sixth month of the pregnancy, these pathological manifestations may become more dangerous for the life of the fetus than for that of the mother.

On the contrary, in the period immediately after birth, the acute renal failure syndrome can be seen more on the mother.

Women tested for the study (%)						
Age-groups	Pregnant women			Non pregnant women		
	Tirana	Berat	Total	Tirana	Berat	Total
15-20	8.6	10	9.3	30	35	32.4
21-25	28.6	27.5	28	15	12.5	13.7
26-30	34.3	50	42.7	15	17.5	16.3
31-35	22.8	7.5	14.7	15	7.5	11.3
>35	5.7	5	5.3	25	27.5	26.3

Tab. 1. Urine samples of pregnant and not pregnant women classified by age group, in Tirana and Berat

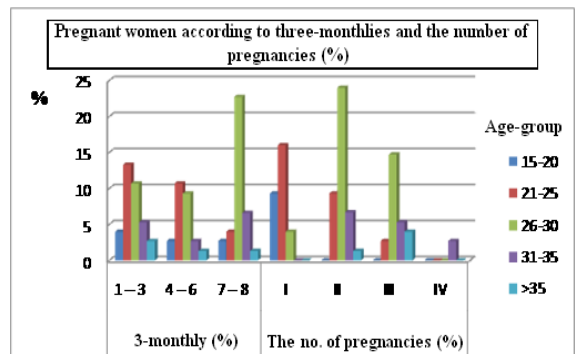
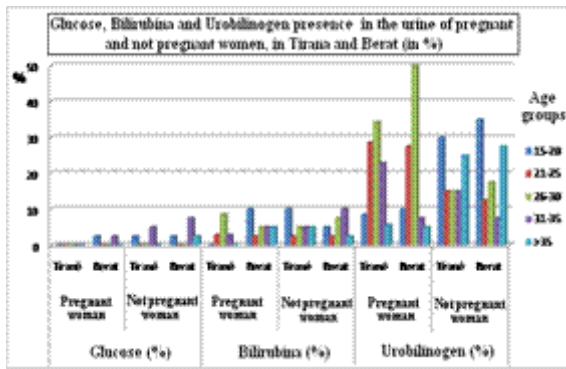


Fig. 2. Chart of pregnant women hospitalized according three-monthlies and numbers of pregnancies (%)

Renal plasma flow and glomerular filtration rate are increased by about 50% during pregnancy. These fluctuations seem to be explained by

increased cardiac debit as well as increased plasma volume which progressively goes to 40-60 ml / kg body weight.



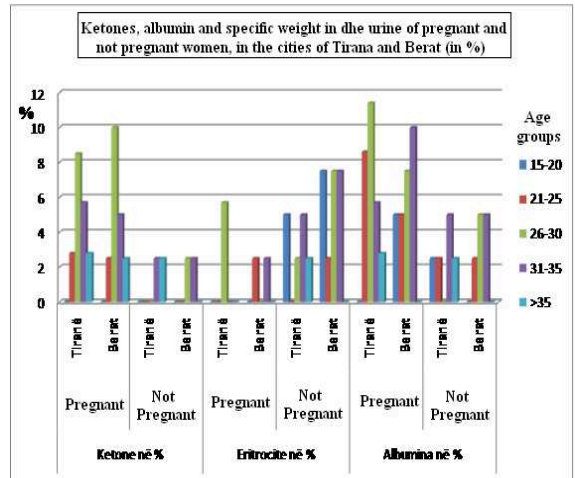
**Fig. 3.** Graph of the content of glucose, bilirubin and urobilinogen in the urine of pregnant women hospitalized and not pregnant, in Tirana and Berat (in%).

This increase in renal plasma flow and glomerular filtration occurs from the first weeks of pregnancy and is maintained until birth. Such an increase of the glomerular filtration poses a notable adjustment of the tubular functions needed to keep the homeostasis.

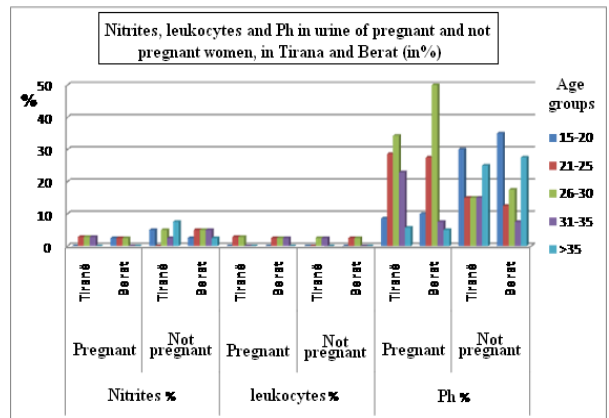
In the late pregnancy vascular resistance is increased, cardiac pressure reaches the previous before pregnancy figures, while plasma flow decreases, but still remaining about 30% higher than before pregnancy. The glomerular filtration rate remains high as well, while the filtration fraction reaches the initial figures.

During pregnancy hypotony and dilatation of the eskreting roads occur. This expansion dominates the right side. Urinary dead space grows to 50-300 ml.

The eskreting roads expansion is associated to some degree with the pressure exerted by the pregnant uterus, including also hormonal factors. Urinary eskreting tracts resume their normal aspect, a few weeks and sometimes a few months after birth.



**Fig. 4.** Graph of the content of ketones, erythrocytes, albumin and specific weight, in the urine of pregnant women hospitalized and not pregnant women, in Tirana and Berat (in%).



**Fig. 5.** Graph of the content of nitrites, leukocytes and Ph in the urine of pregnant women hospitalized and not pregnant women, in Tirana and Berat (in%)

During pregnancy as a result of different pathologies, in urine may arise: glucose, proteins, bilirubin, urobilinogen, ketones, nitrites, blood, leukocytes. Changes can also occur to the urine pH, as well as to its specific weight.

The normal functioning of the kidney and hormonal mechanisms is important for both normal and those pregnant women.

The diagnosis of urinary parameters was carried out in 75 pregnant women hospitalized and 80 normal women, from the cities of Berat and Tirana dominated by 5 age groups, with the largest percentages of pregnant women from the 26-30 age-group (42.7%) and not pregnant females from the 15-20 age group (32.5%).

In the group of studied pregnant women hospitalized on the first three-monthly, according to the age groups included in the study, the largest percentages are from the 21-25 age group, with 13.3%.

On the second three-monthly – from the 21-25 age-group, with 10.7%; and on the third three-monthly – from the 26-30 age-group with 22.7%.

The greatest percentages of pregnant women in the study, were occupied by those on the second pregnancy with 41.3%, followed by those on the first pregnancy with 29.3%; on the third pregnancy 26.7%; finishing with 2.7% for those on the fourth pregnancy.

In our study the percentage of glucose in pregnant women resulted 2.67%, while in women not pregnant 10%, distributed according to age groups.

From the study it was found that 12% of pregnant women had bilirubinuria, with the largest percentages occupied by those with 1+, while for the not pregnant subjects 25% had bilirubinuria again with 1+.

The urobilinogen results showed that 13.3% of pregnant women all figured the amount 0.7, while 81.4% of them had 1+ figures, and only 5.3% of the total figured 1.5.

The urobilinogen results showed that 15% of the not pregnant women hospitalized had 0.7 figures

and 65% of them had 1+ figures, while the rest were scattered.

Of the total pregnant women hospitalized tested, 20% had ketones in their urine, while of the not pregnant women only 5% had them, which shows an indication that grows during pregnancy.

Our evidences change for the presence of red blood cells in the urine: only 5.3% of pregnant women resulted with red blood cells in the blood, compared with 20% of not pregnant women.

Albuminuria, which is one of the most important parameters, in particular during pregnancy because it is associated with a variety of effects, resulted much higher in the case of pregnancy (28%), compared with non-pregnancy (12.5%).

Nitrites resulted in higher percentage in non-pregnant women (20%), compared to pregnant women (8.5%).

Leukocytes percentages in the urine are at approximately the same level, so we have 6.67% of cases in pregnant women compared to 5.3% of cases in women not pregnant.

34.67% of pregnant women resulted with a pH equal to 6.5 (the highest), while 47.5% of women not pregnant resulted with a pH equal to 6.

Specific weight in both cases, pregnant and not pregnant women, the largest percentages resulted with 1,021 - 1,030 respectively 52% and 60% of the cases.

Based on the amount of samples taken for the analysis, resulted that glucose, bilirubina, urobilinogen, ketones, red blood cell and leukocytes for both pregnant and not pregnant women from the city of Berat are at a greater percentages than for those from Tirana.

Albumins and nitrites present in the urine of pregnant and not pregnant women from the city

of Tirana resulted in greater percentages than in those from the city of Berat.

### CONCLUSIONS

From all we have seen in this paper, evidence shows that the diagnosis of urinary parameters is really necessary for both pregnant and not pregnant women, because according to their fluctuations from the norm, disorders may occur, some of which may have consequences especially during pregnancy.

It is important and necessary to study these parameters in close conjunction with the physiological mechanisms and the functioning of the kidney.

Normal functioning of the kidney and hormonal mechanisms are important for both normal and those pregnant women.

The diagnosis of the urinary parameters was carried out in 75 pregnant women hospitalized and 80 normal women, coming from the cities of Berat and Tirana, which were divided in 5 age groups, with the largest percentage occupied: for pregnant women by the 26-30 age group (with

42.7%); and for females not pregnant, by the 15-20 age group (with 32.5%).

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