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PREECLAMPSIA IN THE THIRD TRIMESTRE IN GESTATIONAL DIABETES

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ABSTRACT

Preeclampsia is considered as one of the most important pathologies in the third trimester of pregnancy and with major complications in this period as well. At the same time the values of diabetes or gestational diabetes in general and prediabetes are increasing. This study aims to highlight the correlation between severe preeclampsia and glycaemia values. This is a prospective study including 5112 pregnant patients randomly presented in DRH for routine assessment or labour from 2012 to December 2012.

The metode of study is prospective

Results: 138 (2.6%) of them were diagnosed as preeclampsia, 4 patients with eclampsia, 31 patients with distal placenta. In this group there were 60 cases with prediabetes and 6 patients with gestational diabetes, two of which were treated with insulin. So 47% of women who have preeclampsia tend to have increased values of glycaemia.

In 138 patients with preeclampsia only 5 cases had natural vaginal labour, 11 cases had fetal macrosomy weighing over 4000 g, 15 cases with fetal hypotrophy.

18 cases had preterm delivery at 36 weeks with fetal weight 1400-2400 gr.

Period of study: January 2012 – December 2013

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INTRODUCTION

Diabetes is an important nosology during pregnancy, which received special attention since 1979, at the First International Conference of Gestational Diabetes. At this conference it was concluded that given the complications that this pathology promoted during and after pregnancy it would receive the term of Gestational Diabetes (GD) and treated dynamically, under controlled observation of obstetrician and endocrinologists to have a pregnancy with as little complications and with a successful end for both participants.

Physiopathology of GD

To a pregnant woman occurred a series several metabolic and hormonal changes occur during pregnancy that are associated with adaptation to the function of all organ systems. Maternal metabolism is mainly affected by high values of glycemia and insulin resistance, and this has higher impact in vasculature and especially in kidneys. These changes are well recognized

as diabetic pregnancy complications of this pregnancy, frequently nephropathy with arterial hypertension or preeclampsia. During a normal pregnancy the glomerular filter increases by 30-50%, as a result increases the proteinuria, too. Correlations in the progress of a diabetic pregnancy and renal pathologies according to different studies have no compliance, which means that there is certainly expected with a preeclampsia to a GD, but the progression of renal pathology to a pregnant diabetic is associated with duration of diabetes and control of glycaemia of the patient. The most frequent complications occurred for the fetus to a pregnant diabetic with renal problems are:

- preterm labour with all the prematurity consequences
- arterial hypertension to preeclampsia
- fetal hypotrophy and fetal death in utero

This study includes a group of patients with impaired glucose tolerance or termed otherwise as prediabetes. This includes women with glycemia values within 95 to 110 mg/dl. Actually this is the largest group because these women:

- Complaint nothing
- not necessarily high BMI

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- not necessarily diabetes heritage
- not necessarily rich obstetrical history

Prediabetes is a term used to distinguish people who are at increased risk of developing diabetes. People with prediabetes have impaired glucose tolerance (IGT). Impaired glucose tolerance is a condition in which the glycaemia level is high (140-199 mg / dL after an OGTT 2 - h) but not high enough to be classified as diabetes.

Epidemiology

Arterial hypertension complicates nearly 1 in 10 GD; GD from the other part have an increased risk to develop hypertension compared to the others. Several renal pathologies or retinopathies presence leads to increased risk for high levels of glycemia in pregnancy and after that to become chronic hypertensives. Preeclampsia diagnosis includes the triad:

- TA > 140/90 mm Hg
- edema
- proteinuria

HELLP syndrome deteriorates the prognosis, when there evidence of hemolysis, high transaminase and decrease of platelets. Preeclampsia is more common in the presence of diabetes (approximately 12%) compared to the population without diabetes (8%). Preeclampsia risk also increases with maternal age and preexisting diabetes. In patients with comorbidity of hypertension and diabetes, preeclampsia may be difficult to diagnose. Preeclampsia rate is related to the level of control glycemia. In one study, when sober glycemia (FPG) was <105 mg / dL, preeclampsia rate was 7.8%, and when FPG > 105 mg / dL, preeclampsia rate was 13.8%. (Tobias DK et al Jul 2011, 34(7):1582-4). In that same study, body mass index (BMI) was also significantly related to the outcome of preeclampsia.

Risk factors for GD:

- Maternal age over 35
- BMI
- Multi-parity
- Ethnicity, race
- History for diabetes
- Obstetric history (previous GD)
- Polycystic ovary syndrome
- Multiple pregnancy

A nested case-study has shown that another risk factor for the development of gestational diabetes is the presence of hypertension before pregnancy or during the preceding pregnancy. The report showed that in 381 women with hypertension or prehypertension (the second defined in the study as 120-139/80-89 mmHg), and in 942 control subjects, found that prehypertension before or during early pregnancy was associated with increased risk of gestational diabetes, but hypertension was associated with a twofold increase in risk.

Protocol following up a normal pregnancy during the third trimester (*Comparison to the diabetic pregnancy and preeclampsia*)

Laboratory examinations

- Full blood count + urine examination every 4 weeks
- Full blood count + urine examination every 2 weeks in risk factors presence
- Full Control in 36th week with biochemical exam

For patients with edema, high BMI and high BP values, urine tests should be repeated often and also:

- 24 hours diuresis,
- 24 hours proteinuria
- Renal clearance

Biochemical examinations should insist on platelet, clotting factors, and HbA1c, glycaemia values to people with diabetes.

Ultrasonography

Fetal size, correct gestational age, the amount of amniotic liquor, fetal position, the condition of the placenta and its placement are estimated during the third trimester. DG patients in risk for preeclampsia should be examined with ultrasound more often, and assessed with fetal biophysical monitoring, which includes:

- Monitoring fetal heart beats with normal track over 120 beats per minute and under 160.
- Foetal movements on ultrasound daily, also fetal movements referred to the woman; 2-3 movement under ultrasound at half-hour and 14 fetal movement over 12 hours referred to mother
- Assessment of fetal growth every 4-6 weeks from week 28 in DG patients
- Fetal growth assessment in ultrasound, at least once in 36th-37th week in gestational diabetes
- Assessment of amniotic liquor and foetal position
- DOPPLER Ultrasound to assess maternal to foetal and foetal blood circulation

RESULTS OF THE STUDY

This is a prospective study, that included 5112 patients paved in obstetrics for labour where 2,980 of them were visited regularly during their pregnancy in the hospital and were treated for the respective problems.

138 patients were diagnosed with preeclampsia

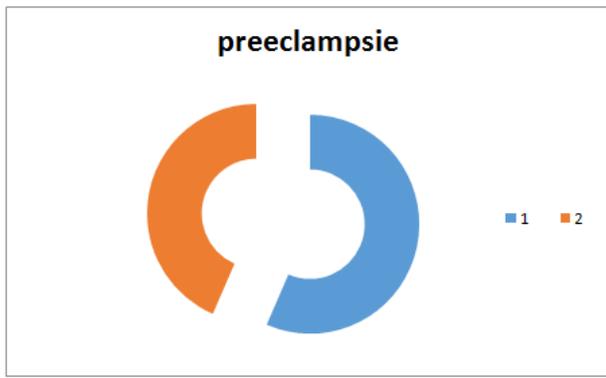
4 patients suffered severe eclampsia

31 patients had distacco of placenta

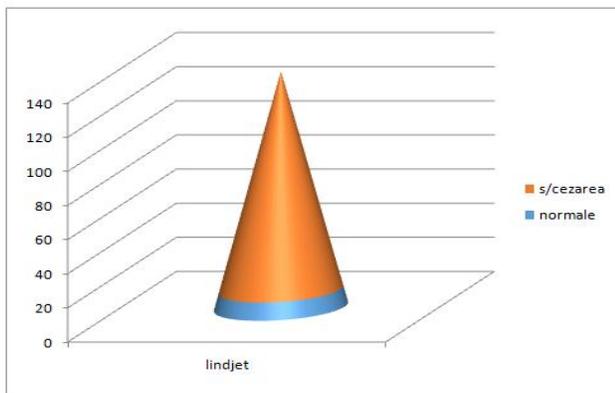
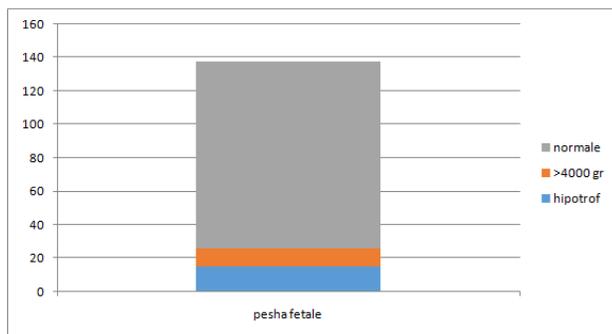
75 out of these 138 patients were treated during pregnancy for frequent urinary infections and high BP levels. The rest was diagnosed in admission for labour.

All patients were examined biochemically and glycaemia values were recorded. In the same time out of these 138 patients with preeclampsia, prediabetic values were found in 60 of them and diabetes in six cases, two of them were diagnosed and treated with insulin.

	Diabetes and prediabetes	Non diabetes
Preeclampsia	66 patients or 47%	72 patients or 53%
138 patients		



	Normal foetal weight	hypotrophy	Over 4000 gr
Preeclampsie	110 cases or 78%	18 cases or 13%	11 cases or 7.8%



(38 of them examined before hospitalization) In 138 patients with preeclampsia only 5 cases had normal natural labour, 11 cases have macrosome children weighing over 4000 g, 15 fetal hypotrophy 18 cases had their labour before 36th week with fetal weight 1400-2400 gr

DISCUSSION

This study shows that a considerable part of the women diagnosed with preeclampsie, tend to have changes in glycaemia values. Actual value of this group with fasting glycaemia over 100 mg/dl is 47%. corresponding to this group glicemi sober over 100 mg / dl. This means that it is a considerable percentage to be taken into account and should be tried for a reduction of this number to have as few complications to the mother and child. What is the primary pathology? Preeclampsia with its phispatological changes its

or gestacional diabetes? Perhaps this will be the aim for another future study.

Conclusions

- Preeclampsia is the most common and important complication of diabetes gestacional in last trimester of pregnancy with vital consequences to mother and child
- Frequent examination and specific controls are the basis for the progress of a diabetic pregnancy to reduce the risk of a preeclampsie
- Monitoring during the last trimester of fetal biophysical condition and laboratory examinations of the patients
- Increased vigilance for the coexistence of these pathologies and for close consultation with the progress of problematic cases
- Implementation of protocol for the last trimester not to leave the resolution of the case in obstetrical emergency.

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