PREDISPOSING FACTORS OF PREMATURE DETACHMENT OF NORMALLY INSERTED PLACENTA

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Keywords: *premature detachment of normally inserted placenta, abruptio placentae, thrombophilia,*

Abstract: *The cause of abruptio placentae is yet unkown. More theories have been generated but none of them has been confirmed so far. Thus the risk factors were emphasized. The identification and the follow up of these risk factors regarding premature detachment of normally inserted placenta constitute a major concern for prenatal medical care and the dispensarization of the pregnant woman. Thus the association of multiple risk factors such as: chronic AHT, preeclamsia, multiparity, age, smoching, trombophilia, diabetes have a significant role in the case of premature detachment of normally inserted placenta.*

Cuvinte cheie: *dezlipirea prematură de placentă normal inserată, abruptio placentae, trombofilii, preeclampsie*

Rezumat: *Cauzele abruptio placentae nu sunt cunoscute. S-au emis mai multe teorii, dar nici una nu s-a confirmat, astfel s-a pus accent pe evidenţierea factorilor de risc Identificarea şi urmărirea acestor factori de risc în apariţia dezlipirii premature de placentă normal inserată constituie un deziderat major în cadrul dispensarizării gravidei şi a asistenţei medicale prenatale. Semnificaţie deosebită în apariţia dezlipirii premature de placentă normal inserată o are asocierea mai multor factori de risc cum ar fi: HTA cronică, preeclampsia, multiparitatea, vîrsta, fumatul, trombofiliile, diabetul zaharat*

INTRODUCTION

The detachment of placenta after 20 weeks of amenorrhea and preceding birth has been named in various ways: placental abruption, abruptio placentae, ablatio placentae, retroplacental hematoma, basal decidual hematoma, and premature separation of normally inserted placenta, uteroplacental apoplexy and in England – accidental hemorrhage. Premature placental abruption can occur either in the case of a normally inserted placenta (al the level of the uterus), phenomenon known as: "premature detachment of normally inserted placenta" (DPPNI), or in the case of a placenta situated in the inferior segment of the uterus, known as placenta previa or low-implemented placenta.

In either of these situations the maternal and fetal consequences are notable. DPPNI differentiates between the abruption of placenta situated at a certain distance from the uterine orifice and placenta previa. The detachment of placenta can be total or partial only.

Etiology: The basic cause of abruption placentae is yet not identified, but there are a number of predisposing factors. In Cunningham et al's article the following risk factors for AP: age and multiple pregnancy (relative risk 1,3-15,5), preeclampsia (relative risk 2,1-4,0)**;** chronic hypertension (relative risk 1,8-3,0); premature rupture of membranes (relative risk 2,4-4,9); multifetal gestation (relative risk 2,1); hydramnios (relative risk 2,0); smoking (relative risk 1,4-1,9); trombophilia (relative risk 3-7) **;**cocaine (relative risk NA) **;**abruption in the medical history of the patient (relative risk 10-25); uterin leiomyoma (relative risk NA) (1,2,3).

Age. The incidence of placental abruption elevates with aging.

Parity. Toohey et al., did not notice an increased incidence in the case of pregnant women with more than 5 pregnancies (4). Multiparity could be a predisposing factor for uteroplacental apoplexy due to certain local and general factors that constitute the so-called "weak ground". For a para VII the risk is 6 times higher than for a primipara and 3 times higher than for a para III.

Multiple pregnancies. In the case of twin pregnancies and especially at para I, the presence of preeclampsia is 4 or 8 times more frequent than the monofetal ones, this representing a risk factor for DPPNI. These cases have been identified especially in the case of pregnancies obtained through fertilization in vitro and transfer embryo transfer (1).

Race and ethnicity seem to matter: in 170000 of births under study at Parkland Hospital abruptio placentae was more frequent in the case of African-Americans and Caucasians (1 in 200) compared to Asians (1 in 300) and Latin-Americans (1 in 450) .

Hypertension during pregnancy. The most frequent association is with HTA of various etiologies: preeclampsia, gestational HTA, chronic HTA. According to Witlin et al., preeclampsia was not correlated with the incidence of AP, data resulting from a study on 445 women (5). Sibai et al. from Maternal-Fetal Medicine Unit Network reported that 1,5% women with chronic HTA when pregnant suffered AP (6). Proteinuria and high blood pressure are not predictive for DPPNI but they can be indicative (7).

Premature rupture of membranes. The AP incidence is increased in the case of premature rupture of membranes. Sibai et al. identified 5% in the case of 765 women with ruptured membranes aged 20-36. S G. In the case of polihidramnyos the risk of PDNIP is elevated if rupture of membranes is present (6).

Smoking. The research initiated by Collaborative Perinatal Project, smoking would increase the risk of AP. In a meta analysis comprising 1.6 mil. pregnancies, Mortensen et al. found that the risk for AP is double in the case of smokers (8). In the case of smokers suffering from chronic HTA, severe preeclampsia or both, the risk has increased 5 -8 times. Similar

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data have been reported by Odegard et al (9).

Cocaine is metabolized by hepatic and plasmatic cholinesterase whose activity is severely reduced at the pregnant woman and the fetus, leading to the accumulation of cocaine with an increase of toxicity potential. Cocaine abuse has been associated with an alarming rate of abruptio placentae.

Diabetes mellitus,Obesity. Many clinical reports have shown a prototype of pregnant women with risk: patient over 35, with gestional obesity, primiparous, smoker, with a gestational obesity early in the pregnancy, chronic hypertension superimposed on preeclampsia/eclampsia which has a major risk of uteroplacental apoplexy.

Thrombophilia. In the last decade a number of inherited or acquired thrombophilia proved to be associated with a thromboembolitic condition during preganancy. . These clotting disorders have been associated with AP and placental infarction. . Kupferminc et al. found a significantly increased risk of AP in women due to gene mutations of factor V Leiden or of prothrombin gene (10). Many cases of thrombophilia are variably associated with preeclampsia and eclampsia and especially with HELLP syndrome, with restriction of intrauterine fetal growth, abruptio placentae, repeated abortions, fetal deaths and thrombosis of spiraled and intervillous arteries (11,12).

Protein C Deficiency (PC) is the endogen anticoagulant factor, vitamin K-dependent, synthesized at the level of the liver. The levels of protein C are stable during normal pregnancy and this implies coagulation More than 160 mutations of protein C have been detected.

Protein S Deficiency. Protein S is the cofactor that actively participates in activating PC and in exerting the proteolytic function of PC on factors VIII and V. Protein S deficiency is measured by determining the free, functional and total Protein S antigen levels.

Mutation G20210A of prothrombin. This false mutation in the prothrombin gene leads to excessive accumulation of prothrombin that can be afterwards transformed in thrombin. It is present at 2% of the white population and it is extremely rare with other races.

Hyperhomocysteinaemia. Acute concentrations of homcysteine activate factor V in endothelial cells which inhibit the activation of prothrombin C leading thus to an increased risk of thrombosis. During pregnancy the risk for thrombosis is 2-3 times higher. (13)

The Immune Factor. Current research considers preeclamsia to be an immune hereditary illness which leads to increased vasopressor factors (tromboxan and endothelin) and/ or leading to the decrease of vasodilator factors (prostacyclin and nitric oxide) (14).

New studies attribute the oxidative stress followed by the production of an increased level of peroxides and of other products resulting from this process. Immune factors are confirmed by placental lesions (vascular atherosis with obstruction, reduction of lumen, lack of trophoblastic invasion, lack of dilation of decidual vases, invasion of foamy monocytes which resemble astonoshingly with the ones present in the case of transplant rejection (15,16). That is why the most severe forms of AP occur in preeclampsia alone or associated with chronic HTA

CONCLUSIONS

Thus the association of multiple risk factors such as: chronic AHT, preeclamsia, multiparity, age, smoching, trombophilia, diabetes have a significant role in the case of premature detachment of normally inserted placenta. We consider that the identification of such risk factors, clinical examination, early diagnosis, the obstetrician's skills and therapeutic intervention on time are of utmost relevance for a positive maternal and fetal outcome when approaching cases of DPPNI.

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