

Polish Society of Perinatal Medicine

ARCHIVES
of
PERINATAL MEDICINE

4300
Volume 16 (1) • 2010

Ośrodek Wydawnictw Naukowych
Scientific Publishers OWN
Poznań 2010

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The correction of disorders of the lactational function of puerperas suffered from preeclampsia

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Abstract

There was carried an estimation of the efficiency of using domperion for correction of disorders of the lactational function of puerperas, suffered from preeclampsia of different degree of severity. On the 6th day of puerperium there was revealed the decrease of the level of prolactin in blood serum of puerperas having disorders of the lactational function. The treatment of puerperas having hypogalactia of the 1 degree with motilium helped to increase prolactin and daily quantity of milk as well as the continuance of the lactational period and did not depend on the level of severity of preeclampsia. It was much harder to treat hypogalactia of the 2nd and 3rd degree in combination with preeclampsia. That explains the lower content of prolactin, lower continuance of the lactation and and preservation of disorders of the lactational function of 47-63% of puerperas.

Key words: prolactin, hypogalactia, agalactia, preeclampsia, puerperas, lactation

Various pathologic processes that complicate the course of pregnancy, birth, postnatal period bring on disorders of the lactational function of puerperas [1, 3]. Preeclampsia is one of the number of disorders which leads to changes in hormonal homeostasis as well as decrease in the level of prolactin [1, 2], which is the key hormone stimulating milk produce in alveoles of a breast [4, 5]. Various endogenous factors influence its secretion, but dopamine plays a determinative role in regulation of the level of the hormone.

Antagonists of peripheral and central receptors of dopamine that deminish the production of prolactin abscopal factors appeared to be a pathogenetically grounded therapy of early hypohalactia [1]. One of these medications that are used in obstetric practice is domperion (motilium), which stimulate the secretion of prolactin from hypophysis, practically has no by-effects and does not pass on to breast milk [1].

The aim of our research is estimation of the efficiency of domperidone for correction of disorders of the lactational function of puerperas, suffered from preeclampsia of various degree of severity.

Materials and methods of the research

There were examined 345 puerperas, who were divided into 4 groups before birth. Women with normal pregnancy formed the screening group (96). The main groups were formed by women (249) who had preeclampsia during pregnancy: 1 group – light, 2 group – me-

dium, 3 group – severe degree of severity. The criteria that were used for comparison are the following: full-term pregnancy, delivery through natural maternal passages.

Every group of puerperas was divided into sub-groups taking into account the lactational function on the 6th day (normal lactation – 500-600 ml/day; hypohalactia (HH) of the 1st degree – deficiency of milk up to 25% from normal quantity; hypohalactia of the 2nd degree – deficiency of milk up to 50%; hypohalactia of the 3rd degree – over 50% and agalactia – absence of milk).

Daily amount of milk was determined by generally used methods on the 6th day of post-natal period.

In blood-serum on the 6th-20th day of puerperium there was determined the level of prolactin using immune-enzyme analysis of the 3rd generation "AxSYM" (2003, USA), by means of standard set of reagents Abbott AxSYM system.

Puerperas with disorders of the lactational function took motilium (domperidone) produced by "Janssen" company (capsules, 10 mg, 30 pcs, P N^o 014853/01-2003 25.03.03) take 15-20 minutes before meal perorally 10 mg 3 times a day 1 hour before nursing or elutriation during 14 days beginning from the 6th day of puerperum.

The results of the research were processed on PC using computer program Statistica 6.0, Microsoft Excel.

The results of the research and discussion

All women from the screening group had newborns for breast-feeding (an hour after birth). Women from the first (26), second (29) and third (42) main groups had

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the first breast-feeding delayed because of the condition of newborns (disorders of cerebral circulation, intrauterine infection, hemolytic disease of newborns) and/or remained preeclampsia manifestations of their mothers and took place on average in 48.5 ± 2.1 hour after birth. There was revealed that the dynamics of quantity of breast secrete of women from main groups with different periods of first putting to the breast depended on the level of severity of preeclampsia. When 152 puerperas were allowed to put newborns to the breast during the first day, the volume of milk beginning from the second day after birth increased (first breast-feeding) by 30-50% every second day. It is necessary to mention that changes were reliable beginning from the 4th day. The increase in the volume of lactation of 97 women with delayed breast-feeding was less evident. At the same time a reliable increase in the volume of lactation in comparison with initial level was registered on the 6th day. Besides scores of breast secretion that these women had during the whole period of observation were lower then during early breast-feeding by 25-35% ($p < 0.05$).

There were revealed disorders of the lactational function of 185 (74.3%) puerperas having preeclampsia and 32 (33.3%) puerperas of the screening group. Two puerperas having preeclampsia (1.96%) from the first group, four (4.76%) from the second and five (7.94%) from the third group had agalactia. 32 (33.3%) of women from the screening group and 36 (35.29%), 36 (42.85%), 9 (14.28%) puerperas having preeclampsia from the first, second and third group correspondingly had HH of the first degree. 14 (13.72%), 14 (16.66%), 28 (44.4) puerperas from main groups had HH of the second degree. 8 (7.84%), 12 (14.28%), 11 (17.4%) puerperas having preeclampsia from the first, second and third group correspondingly had HH of the third degree.

Women with normal lactational function from the screening group and having preeclampsia with different degree of severity had the content of prolactin on the 6th day on average 284.6 ± 17.4 ng/ml. In blood serum of puerperas who had HH of the first degree (from the screening group and having preeclampsia with different degree of severity) the content of the hormone was reliably lower (by 20-27%) against the corresponding sub-group with normal lactation; having HH of the second degree – by 44-49%. It is necessary to mention that while having HH of the 3 degree the level of prolactin decreased by 50% under the effect of preeclampsia of light degree and by 73 and 81% having medium and severe preeclampsia against the corresponding sub-group of puerperas having normal lactation.

On the 20th day women with initial normal lactational function had the content of prolactin increased by 83, 81, 80% in 1-3 main groups and 70% in the screening group. The continuance of the lactation of puerperas made up 11.8 ± 3.1 ; 10.5 ± 2.7 ; 8.8 ± 2.2 and 4.6 ± 2.6 months. It is necessary to mention that women with initial normal lactational function who had severe preeclampsia during pregnancy, had the level of prolactin on the 20th day reliably lower against sub-groups of puerperas having normal lactation from the screening group, 1, 2 groups.

On the 20th day after taking motilium puerperas from the screening group, 1, 2 groups having initial HH of the 1 degree had practically normal content of prolactin and the quantity of secreted milk increased to 80-100%. The continuance of the lactation of puerperas make up 12.2 ± 2.4 ; 11.7 ± 3.0 ; 8.9 ± 2.1 months. While having severe preeclampsia with initial HH of the 1 degree, despite increasing of prolactin after medical treatment, only 5 women had normalization of the lactational function and cotinuation of the lactation made up 6.5 ± 2.1 months.

Puerperas from the 1 group (light preeclampsia) who had initial HH of the 2 degree after taking motilium had the content of prolactin increased by 162%, but its level was reliably lower against the group with normal lactation. The lactational function became normal in 13 cases and continuance of the lactation made up 9.5 ± 2.7 months. There was revealed that puerperas from the 2 main group having HH of the 2 degree had similar changes in content of prolactin. However the lactational function in the sub-group became normal in 12 cases but 2 women had deficiency of milk within the limits of 25%. The continuance of the lactation made up 7.2 ± 1.8 months. Puerperas having preeclampsia with initial HH of the 2 degree despite the increase of the level of prolactin by 151% on the 6th day, 14 women had normalization of the lactational function after medical treatment, 12 puerperas had HH of the 1st degree, 2 women had the deficiency of milk up to 50%. The continuance of the lactation in the sub-group made up 5.8 ± 2.2 months.

Puerperas from the first main group having initial HH of the 3 degree had the content of prolactin on the 20 day of puerperium increased by 179% in comparison with the level on the 6 day, but its content was reliably lower against all sub-groups of the group ($p < 0.05$). While estimation of the lactational function in that period 3 women had the deficiency of breast milk by more than 50%. Two women had the deficiency of milk more than 25% and two women had the deficiency of milk less than 25%. Three puerperas of the sub-group had the norma-

lization of the lactational function. The continuance of the lactation in the sub-group made up 5.3 ± 2.4 months. Puerperas who had preeclampsia of medium degree during pregnancy, having initial deficiency of milk more than 50% after injection of inhibitor of dopamine receptors had prolactin increased by 161%, but its level was reliably lower against sub-groups of this group ($p < 0.05$). After medical treatment 4 women out of 16 had normalization of the lactational function. On the 20 day 4 puerperas had HH of the 1 degree, 6 women had HH of the 2 degree, 2 women had agalactia. The continuance of the lactation in the sub-group made up 4.3 ± 1.5 months.

There was discovered the increase of the level of prolactin after treatment with motilium in the sub-group of women having severe preeclampsia with initial HH of the 3 degree, but as the result of its low level on the 6 day its quantity in absolute expression made up 125 ± 12.1 ng/ml, that was reliably lower in comparison with other sub-groups of examined puerperas. Two women of this sub-group had normalization of the lactational function, 4 women had HH of the 1 degree, 7 – HH of the 2 degree. After medical treatment of agalactia 4 women had no improvement. The continuance of the lactation in the sub-group made up 3.8 ± 1.5 months.

The results of clinicostatistic and immune-enzyme analyses showed that there are disorders of the lactational function of puerperas who had preeclampsia. It is caused by the decreased level of prolactin. The medical treatment aimed to increase the production of prolactin contributed to the increase of daily quantity of milk and continuance of the lactational period of puerperas having HH of the 1 degree in all groups. Puerperas who had had preeclampsia of light and medium degree of severity and HH of the second degree and puerperas who had HH of the third degree only from the first main group had a positive effect from taking motilium.

According to observational data the continuance of the lactational period decreased according to the level of severity of preeclampsia and made up 12.0 ± 2.2 ; 9.25 ± 2.6 ; 7.3 ± 2.1 ; 5.2 ± 1.9 months. Besides it is necessary to mention that puerperas who had preeclampsia of light and medium degree of severity with initial normal lactational function had decrease of the duration of breast-feeding by 25 and 62% against corresponding sub-group of the screening group.

The continuance of the lactation with initial HH of the 1 degree in the screening group and in three main groups after medical treatment was higher than in sub-groups with untreated puerperas having normal lactational function from corresponding groups. According to our research it was much harder to treat HH of the 2 and 3 degree in combination with preeclampsia using pharmacotherapy. That explains the lower continuance of the lactational period and preservation of disorders of the lactational function of 47-63% of puerperas.

Conclusion

The results of the research gives us an opportunity to refer the pregnant having preeclampsia to the risk group according to forming hypogalactia and agalactia. We consider that these women besides early putting of newborns to the breast and the free mode of breast feeding (without contra-indications) should go through early preventive measures against disorders of the lactational function using inhibitors of dopamine. It should be prescribed immediately after birth for the purpose of increase of the level of prolactin as lactation is possible only under conditions of its proper produce by hypophysis.

Besides research data are the basis for creation of new approaches to the treatment of the main disease (preeclampsia) that are based on the decrease of endogenous entoxication for the purpose of prevention of development of disorders of the lactational function during puerperal period.

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