ANALYSIS OF THE COURSE OF PREGNANCY IN PATIENTS WITH PELVIC BONE FRACTURES

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ABSTRACT

The different aspects of the consequences of pelvic fractures in pregnant women are of scientific and practical interest not only for orthopedic traumatologists, but also for obstetricians and gynecologists.

OBJECTIVE

To study the nature and frequency of consequences of pelvic bone fractures in pregnant women.

MATERIAL AND METHODS

A clinical study of 81 pregnant women having pelvic bone fractures was carried out. The average period after the injury and before the conception was 4.71 years. All in all, 81 pubic, 59 ischial, 23 iliac bones have been broken in 81 pregnant women. In addition, 22 women had consolidated fractures of the sacrum, 17 of them had consolidated lobes and 6 patients had one of the sacroiliac joints. To confirm the existing pelvic pathology, a clinical examination was performed, the medical documents (X-rays and tomograms) that were available in pregnant women were analyzed.

RESULTS

The pain of varying severity prevailed in 93.05% of women in the clinical picture of consolidated pelvic fractures in pregnancy. Also, soft tissue asymmetry (36.11%), pelvic bone deformation (19.44%), shortening of one of the legs (18.05%), contractures of the hip joints (15.28%), lameness when walking (13.88%) were reported in pregnancy. The age of the subjects ranged from 17 to 39 years, the average age was 27.6 years. For the analysis of the course of pregnancy, labor and perinatal outcomes using archival material (the medical documents (discharge reports, radiographs and tomograms of the pelvis)) were used.

CONCLUSION

To study the nature and frequency of consequences of pelvic bone fractures in pregnant women.

MATERIAL AND METHODS

We have 25 years experience in dynamic observation and treatment of 81 pregnant women with pelvic fractures, they were included in the main group. The age of the subjects ranged from 17 to 39 years, the average age was 27.6 years. We studied the course of pregnancy, childbirth and perinatal outcomes in 20 pregnant women of the same age interval without having pelvic fractures who were included in the control group.

The treatment and rehabilitation of patients with pelvic trauma take a long period of time and the consequences of fractures often remain, one of the most severe consequences is the deformity of the pelvic ring [10, 11]. It has been established that post-traumatic pelvic deformities can have an adverse effect on the course of the gestational period and intrauterine development of the fetus [14, 17]. So, in the impaired normal anatomy of the pelvis in pregnant women, there is a high probability of the formation of pathological positions of the head, spine, limbs in fetus which will require significant efforts to correct them after the birth of newborns [8, 9, 18]. The severe post-traumatic deformities of the pelvic ring can be the reason for making decision of the surgical resolution [12, 13, 16].
years, on average 4.71 years. Among 81 pregnant women 20 women (25.0% + 10.2) had a bone fracture of a pelvis, 27 patients (33.33% + 9.6) had a fracture of two bones, 33 of them (41.67% + 9.02) had fractures of three or more bones and joints of the pelvis. All in all, 81 pubic, 59 ischial, 23 iliac bones were broken. In addition, in 22 patients the consolidated fracture of the sacrum, in 17 women the fused symphysis pubis fractures and in 13 pregnant women the fused breaks of one of the sacroiliac joints were registered.

The mechanisms of getting pelvic fractures in women were the following: the car injury was in 77.79% ± 5.5 of cases, the pubic symphysis injury during the previous labors was in 11.11% ± 11.06 of cases, falling from a height was in 9.72% of women, the industrial injury was in 1.38% of cases.

The use of the AO / ASIF classification [15] allowed to distribute the fractures in pregnant women of the main group as follows: in 80.55% ± 1.66 of women the pelvic injuries were classified as type A, in 15.27% ± 10.76 of cases the injuries were related to type “B”, in 4.18% ± 1.31 of patients the injuries were classified as type “C”.

In 23.61% ± 10.2 of pregnant women, the fractures of the pelvic bones were accompanied by fractures of other bones of the skeleton, sometimes they were multiple. The post-traumatic neuropathies resulting from the pelvic trauma or at the stages of its treatment were not registered in any of the clinical observations. Also, there were no reports of any urological complaints in the women during the study.

In 34.72% ± 9.47 of cases the affected pelvic fractures were treated surgically, in 65.28% ± 6.95 of cases the conservative methods were used.

Statistical processing of the clinical material consisted of determining the arithmetic mean (M) and the arithmetic mean error (+m). The reliability of the results obtained and the value of the probability (p) were assessed by the Student’s t-test (t).

RESULTS AND DISCUSSION

A clinical study of pregnant women with a history of pelvic fractures allowed to establish the nature and frequency of the main consequences of these fractures.

The pain syndrome which caused the greatest suffering to women was prevalent in the clinical picture. The pains were localized mainly in the lumbar region, sacrum, buttocks, sacroiliac joints, womb, groin areas. 93.05% ± 3.11 of pregnant women reported about the presence of pain in the indicated localizations. Before pregnancy, 16.66% ± 10.58 of women complained of the pain in the area of the pelvic bones.

According to the assessment criteria regarding the visual analogue scale the severity of the pain syndrome in the subjects ranged from 1 to 6 points, on average 4 points. In all cases, there was a direct correlation: the more severe fractures, especially multiplanar in the presence of not completely eliminated displacement were obtained by the women and the greater cherished term pregnancy was, the greater degree and duration of pain was present.

The establishment of asymmetries of paired soft tissue and bone formations of the pelvis was of great importance. The presence of such asymmetries was confirmed the deformities of the pelvic ring [8, 11]. On examination, the position of the iliac wings, the anterior and posterior superior iliac spines, the contours of the greater trochanter of the femur, the correctness of the sides and angles of the Michaelis rhombus were assessed. So, in bone deformities of the pelvis in pregnant women, the smoothness of the greater trochanter of the femur on the affected side and its excessive curvature on the opposite side were clearly determined. Attempting to sit symmetrically on both buttocks, the body of the women deviated towards the deformed half of the pelvis.

When evaluating the symmetry of paired bone formations, the attention was paid to the scars on the skin left after the introduction of metal structures into the bones during the surgical treatment of fractures.

It was possible to establish the presence of pelvic deformities on the basis of the asymmetric position of its paired formations in 19.44% ± 10.69 of women.

In addition to the asymmetry of paired bone formations, the asymmetry of the gluteal folds was found in 26 patients (36.11% ± 9.41) of pregnant women. The prevalence of soft tissue asymmetries over bone indicated a significant frequency of muscle hypotension, mainly of the gluteus maximus and middle muscles. Trendelenburg positive symptom was considered to be the most reliable symptom of this pathology which was diagnosed in 18.05% ± 10.65 of pregnant women. In 69.23% ± 15.41 of 16 cases, this symptom corresponded to the half of the injured pelvis. In 30.77% ± 22.91 of clinical observations, Trendelenburg positive symptom was revealed in the women who had consolidated fractures of the right and left pelvis simultaneously. In all cases, Trendelenburg positive symptom was found in pregnant having consolidated fractures of the lateral sacral masses.

The clinical study of pregnant women in the supine position was of great importance. Thus, the loading on the wings of the iliac bones was found in 80.55% ± 5.25 of women. The pain in one of the sacroiliac joint was revealed in 37.5% ± 9.29 of pregnant women. During the study, the pain syndrome was always intensified palpating the articulation area. Manual diagnostics was carried out in these 30 pregnant women allowed to establish the limitation of mobility in the joint in 88.88% ± 6.63 of clinical observations.

The diagnosis of the pelvic joints condition was accompanied by the palpation of the gluteal muscles. The particular attention was paid to the projection of the large sciatic foramen. It is known that a pain and an increased tenderness on the palpation of this anatomical region is one of the manifestations of piriformis syndrome [15]. The painful limitation in the internal rotation of the thigh of varying severity confirmed the presence of this syndrome. During the study the clinical manifestations of piriformis syndrome were established in 16.66% ± 10.58 of women.

The study of pregnant women in supine position gave the information concerning the length of the legs and the range of motion in the hip joints. Thus, the difference in leg length was diagnosed in 18.05% ± 10.65 of pregnant women. The difference in leg length...
varied from 0.7-0.8 mm to 3.5 cm, on average 1.5 cm shortening.

The existing shortening of the leg was the cause of lameness when walking, and the greater difference in the length of the legs was, the more noticeable lameness was marked. The clearly visible lameness was found in 13.88% ± 10.63 of women.

The most important consequences of pelvic fractures in the studied women causing the significant discomfort were contractures in the hip joints. During the course of the study, in 15.27% ± 10.76 of women the limited motion in the hip joints were diagnosed indicating the presence of contractures in them. In all cases, the painful limitation of the volumes of flexion and external rotation of the hips which are necessary for childbirth through the vaginal birth canal was determined. The average volume of the amplitude of the leg flexion in the hip joint in the studied pregnant women was 73°, the volume of the external rotation was 22°.

The course of pregnancy and childbirth was analyzed using archival medical documents in 26.38% ± 10.06 of cases of 81 studied women. The primiparous women in the main group were 47.36% ± 16.5, multiparous – 52.64% ± 15.79 of women. Twenty pregnant women 50.0% ± 15.81 in the control group were represented as primiparous women and – 52.64% ± 15.79 of women were multiparous. Analysis of the course of the main stages of pregnancy, and the complications arising in this case, showed that their frequency in women of the main and control groups did not have a statistically significant difference and was comparable. A significant difference was that it was physically harder for pregnant women with consolidated bone fractures to bear pregnancy due to the pain in the pelvis, contracture of the hip joints, and lameness when walking.

In the presence of these clinical symptoms, an obstetrician-gynecologist can recommend a pregnant woman with the consequences of pelvic fractures to have a consultation with an orthopedic traumatologist, who will make a decision of having a non-drug treatment. So, for this category of pregnant women, it is possible to conduct sessions of post-isometric relaxation of the muscles of the back, buttocks and thighs, mobilize the pelvic joints, compensate the shortening of the leg with an orthopedic insole.

Independently, an obstetrician-gynecologist may recommend pregnant women to use a prenatal bandage or trochanteric belt, not to sit in one position for a long time, dress and undress while sitting, lie on the less painful side, while bending the knee and hip joints, avoid walking for a long time, torso bending, lifting weights, adhere to a diet balanced in the composition of microelements, engage in physiotherapy exercises under the supervision of an instructor.

An important distinctive feature of the women of the main group was that most of them were initially set up for the delivery only by surgery. Even before pregnancy, in the process of treating pelvic fractures, they were often convinced that a future pregnancy should be resolved by caesarean section, and the women and their relatives lived with this idea for many years. When the pregnancy has been born and the due date of labor is approaching, it is very difficult to convince them to give birth on their own, since there are often no indications, even relative ones, for a cesarean section.

In the analyzed pregnancy, all women of the main and control groups were delivered at full-term gestation. The vaginal birth was registered in the main group in 42.1% ± 17.44 of clinical cases, in the control group it was in 85.0% ± 8.66 of cases. The childbirth by caesarean section was performed in 57.9% ± 14.92 and 15.0% ± 7.0 of parturient women, respectively.

In pregnant women of the main group among 13 cases of the operative delivery in 9 (71.72% ± 15.87) of clinical observations an indication for surgery was a recommendation of an orthopedic traumatologist. In all these cases, the indications for surgery were relative such as multiplanar deformity of the pelvic ring caused by incorrectly consolidated fractures of the bones, pronounced pain contracture of the hip joints with the limitation, mainly, the volume of active flexion and external rotation of the hips.

All babies born in the mothers of the main and control groups were mature and full-term. The average weight of newborns in the main group was 3557 grams, their height was 53 cm. In the control group of newborns, their weight and height were 3640 grams and 55 cm, respectively. All children were discharged home from the maternity hospital in the satisfactory condition.

CONCLUSION

The orthopedic study of pregnant women allowed to obtain some information about the nature and frequency of the main symptoms of pelvic pathology remained after the fractures. They are the following: pain in the pelvic projection (93.05%), soft tissue asymmetries (36.11%) and bone deformities of the pelvic ring (19.44%), shortening of one leg (18.05%), contracture of the hip joint (15.27%), lameness when walking (13.88%). The information obtained is not only of scientific, but also of practical interest and guides the doctor towards the purposeful identification of the main symptoms of pelvic pathology, in case that it is impossible to carry out any objective radiation (X-ray, computed tomography) to diagnose the consequences of bone injuries during pregnancy.

It is advisable to conduct pregnancy management in the women with a history of pelvic fractures together with an orthopedic traumatologist, who can recommend and administer a complex of non-drug therapy aimed to reduce the main clinical symptoms of the consequences of the pelvic ring injury if it is necessary.

LITERATURE

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ПРОВОСПАЛИТЕЛЬНЫЕ ЦИТОКИНЫ IL-4 И IL-13 У ДЕТЕЙ С "НЕСЕКРЕТАНТНЫМ" И "СЕКРЕТАНТНЫМ" СТАТУСОМ АНТИГЕНА "H" ПРИ ПИЩЕВОЙ АЛЛЕРГИИ

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PRO-INFLAMMATORY CYTOKINES IL-4 AND IL-13 IN CHILDREN WITH "SECRETOR" AND "NON-SECRETOR" STATUS OF H ANTIGEN DURING FOOD ALLERGY.