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ULTRASOUND DIAGNOSIS OF TRAUMATIC SPLEEN INJURY & EARLY POSTSPLENECTOMY
COMPLICATIONS IN THE SPLENIC FOSSA
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ABSTRACT:

Analysis of the results of investigation of 562 patients admitted as a case of abdominal injury shows that ultrasound is highly significant in the evaluation of patients with traumatic spleen injury. Its appropriate use allows for accurate diagnosis not only of the parenchymal traumatic lesions but also allows for the assessment of their nature and location. It further allows for the assessment of the splenic vascular structure. Ultrasound is a highly informative diagnostic tool relevant in the assessment and monitoring of postsplenectomy patients in the early post operative period. It additionally handy in the selection of patients prone to postoperative complications.

Key words:

ultrasound, spleen trauma, postoperative complications.

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SURGICAL STIMULATION OF REGENERATION AND
INTENSIFICATION OF REVASCULARISATION OF BONE TISSUE IN
CASE OF PERTHES DISEASE (PD)

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ABSTRACT

The purpose of the following research is to evaluate the efficiency of the suggested operative treatment. The examination of 61 children and the operative treatment of 36 children with Perthes disease using the method of damper dynamic unloading; the operative treatment of 25 children according to the method of intensive revascularisation. The suggested methods allow to restore an efficient blood circulation in the affected zone in the shortest period of time and to begin rehabilitation of children.

Key words :

surgery, bone tissue regeneration, Perthes disease

Objectives:

The purpose of the research is to evaluate the effectiveness of the suggested operative treatment. 61 children (5 – 12 years old, the average age – $7,5 \pm 0,5$) with PD were treated during the 2000 – 2006 period. From this group of patients – 11 children were with the stage I of the disease; 17 patients with stage II; 33 – stage III. The distribution of patients according to their sexual belonging: girls – 9 (14,8 %), boys – 52 (85,2 %), the correlation – 1:5,8. The test group includes 36 children (59 %), operated according to the method of damper dynamic unloading. The dismantling of a damper dynamic system was fulfilled in average in $2,8 \pm 0,3$ months after the operation. The criterion of the dismantling was a positive dynamics in a patient for the restoration of the bone tissue structure of the head of a thigh. The test group includes 25 children (41 %), operated according to our suggested method of the intensive revascularisation with the help of the device, used for intratissular pressure lowering. The stimulation of the bone tissue regeneration was conducted by the intensive revascularisation method (The stimulation method of the bone tissue regeneration / I. V. Kirgizov, V. A. Dudarev, N. N. Kulikov and others // Patent № 2223706 23.09, 2004), (The treatment technique of aseptic necrosis of the head of a thigh and Perthes disease / V. A. Dudarev, I. V. Kirgizov, N. N. Kulikov and others // Prior. Certificate № 2005115656, 23.05 2005). With the help of the device for intratissular pressure lowering, which was introduced along the center of the neck of a thigh, to $\frac{1}{2}$ of the

head height of a thigh. In the test group of children with Perthes disease ($n = 25$) twice a day in the post-operative period during 15 days, after intratissular pressure lowering registration, the active aspiration with a syringe through a revascularisation needle with a tap of contents of a head of a thigh with intratissular pressure lowering by 30 % from the value of intratissular pressure at the moment of registration and the repeated measurement of intratissular pressure. We managed to achieve the decrease and stabilization of intratissular pressure in figures is lower by 30 % from the initial intratissular pressure value before the beginning of treatment on the 12th day after the device implantation for intratissular pressure lowering and the revascularisation intensification of the pathologic zone.

From the 12th to the 15th days after the operation the value of intratissular pressure was 30 % lower than it was before treatment. The device dismantling for lowering intratissular pressure and intensification of revascularisation in the pathologic zone was conducted on the 15th day after the operation. The criterion for dismantling was a steady stabilization of intratissular pressure on the value, which is 30 % lower of the intratissular pressure value before treatment depending on age and the stage of pathologic process, and positive dynamics of the restoration of the organ hemodynamics in the hip joint.

In the post-operative period all children with Perthes disease were undergone to dopplegraphy with the estimation of the regional bloodstream in the operated hip joint.

In the test group children with stage I of Perthes disease before the operation, Vmax in arteries (a. circumflexa femoris medialis) lowed in stage IV (after the operation) by 3,2 % (to $54,7 \pm 0,6$ cm / sec), Vmin increased by 21,0% (to $16,7 \pm$

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0,5 cm / sec), RI lowered by 5,4 % (to $0,70 \pm 0,02$), d of an artery increased by 18,7 % (to $1,9 \pm 0,1$ mm). In children with stage II of Perthes disease before the operation, in stage IV Vmax lowered by 6,0 %, Vmin increased by 36,9 %, RI lowered by 10,3 %, d of an artery increased by 16,7 %. In children with stage IV, Vmax lowered by 5,2 %, Vmin increased by 15,1 %, RI lowered by 9,2 %, d of an artery increased by 26,7%.

In children in the test group with stage I of Perthes disease before the operation, Vmax lowered in stage IV (after the operation) by 3,4 % (to $54,6 \pm 0,6$ cm / sec), Vmin increased by 23,4 % (to $17,1 \pm 0,5$ cm / sec), RI lowered by 6,8 % (to $0,69 \pm 0,01$), d of an artery increased by 18,7 % (to $1,9 \pm 0,1$ mm). In children with stage II of Perthes disease before the operation, in stage IV Vmax lowered by 6,2 %, Vmin increased by 40,2 %, RI lowered by 11,5 %, d of an artery increased by 26,7 %. In children with stage III of PD before the operation, in stage IV Vmax lowered by 5,0 %, Vmin increased by 17,9 %, RI lowered by 8,0, d of an artery increased by 18,7 %. A steady normalization of speed indices of a blood stream was marked from stage IV, in stage V it was preserved.

In children of a test group in v. circumflera femoris medialis, with stage I of PD before the operation, in stage IV (after the operation) increased in the vein Vmax by 14,4 % (to $22,3 \pm 0,7$ cm / sec), Vmin – by 9,7 % (to $14,7 \pm 0,4$ cm / sec), RI – by 12,9 % (to $0,35 \pm 0,02$), d of a vein remained within the norm in stage I and in stage IV of PD as well, and it was $2,1 \pm 0,2$ mm. In children with stage II before the operation, in stage IV Vmax increased by 36,0 %, Vmin – by 17,6 %, RI – by 34,6 %, d of a vein lowered by 19,2 %. In children with stage III before the operation of Perthes dis-

ease, in stage IV Vmax increased by 27,4 %, Vmin - by 9,7 %, RI – by 16,7 %, d of a vein lowered by 19,2 %.

In children of the tested group with stage I of Perthes disease before the operation, in stage IV (after the operation) Vmax increased in the vein by 15,4 % (to $22,5 \pm 0,5$ cm / sec), Vmin – by 11,2 % (to $14,9 \pm 0,7$ cm / sec), RI – by 9,7 % (to $0,34 \pm 0,02$), d of a vein remained within the norm, in stage I of PD and in stage IV it was $2,2 \pm 0,1$ mm. In children with stage II before the operation, in stage IV Vmax increased by 37,2 %, Vmin – by 19,2 %, RI – by 30,8 %, d of a vein lowered by 15,4 %. In children with stage III before the operation, in stage IV Vmax increased by 28,6 %, Vmin – by 11,2 %, RI – by 13,3 %, d of a vein lowered by 15,4 %.

Thus, because of the application of operative methods in treatment of children with Perthes disease, we managed to achieve a steady normalization of microcirculation in a hip joint, being present in stage V (the final stage, the result), in the early period (already in stage IV). Moreover, in the test group and in the examined groups, there was no statistically significant difference of indices in stages IV and in V of PD from the stage of the disease at the moment of an operative treatment/ But in the test group of children, the terms of restoration of a blood stream of the organ were long – $2,8 \pm 0,3$ months; while in the examined group of children, treated with the help of intensive revascularisation, the restoration of hemodynamics in the head of a thigh was registered on the 15th day from the beginning of the treatment. Thus, intensive revascularisation is an important method of treatment of Perthes disease, which allows to restore an effective blood circulation in the field of affection quickly (on the 15th day). This method gives a possibility to begin treatment and rehabilitation of children with Perthes disease early.

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Р.А.Кууз¹, М.А.Ронкин¹, Г.И. Фирсов² ОЦЕНКА ДИСКРИМИНАНТНО-ПРОГНОСТИЧЕСКОЙ СПОСОБНОСТИ ТОПОЛОГИЧЕСКИХ ХАРАКТЕРИСТИК СТАБИЛОГРАММ В НЕВРОЛОГИЧЕСКОЙ КЛИНИКЕ

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АБСТРАКТ

Анализируется информативность площадь траектории и параметра аппроксимации функции плотности двумерной гистограммы. Обследовались практически здоровые, больные с выраженными нарушениями координации и больные паркинсонизмом.

Ключевые слова :

стабилограмма, функциональная диагностика, паркинсонизм, двумерная плотность вероятности, неврологические патологии

Важной количественной мерой стабилограммы является максимальная площадь траектории, определяемая, как опорная площадь соответствующей двумерной гистограммы [1]. Оценка площади траектории позволяет сравнивать различные объекты движений с точки зрения величины заполняемого участка плоскости и протяженности границ предельного движения. Вместе с тем оценка величины площади траектории не содержит информации о степени заполнения траекторией этой площади.

Подобная информация заключена в особенностях формы боковой поверхности двумерной гистограммы, которые можно выявить с помощью ее плоских сечений, параллельных координатной плоскости, определяя площадь каждого сечения S и относительную вероятность Φ попадания траектории в область, ограниченную соответствующим сечением. В результате получим зависимость вероятности заполнения данной площади от величины этой площади, иначе говоря, функцию распределения вероятностей заполнения площади. Конкретный вид полученной функции распределения естественно будет определяться формой исходной двумерной гистограммы.

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