INNOVATION ASPECTS OF REHABILITATION METHODS OF TREATMENT OF ACETABULUM DAMAGE

The article is devoted to solving improvement of rehabilitation treatment methods in acetabular injuries. Offered algorithm enables to improve rehabilitation treatment methods of acetabular injuries. Algorithm of rehabilitation includes blocks of conservative (including blocks ambulatory, treatment at a health resort, medicamentous) and other methods of treatment of acetabulum damage as well as control block. Block of endoprosthetics of coxofemoral joint is also provided for in case of detection of signs of coxarthrosis. Innovation algorithm of perfecting rehabilitation methods of treatment of acetabulum damage (AD) contributes to expansion of an implementation sphere in traumatic surgery and orthopedics practice. It allows practical physicians to build a clear algorithm of postoperative rehabilitation for this complicated cohort of patients with AD.

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Introduction

Rehabilitation treatment is a main stage of restoration of functioning hip joint in patients with acetabulum damage. How shows our experience, inopportune started or inadequate rehabilitation methods of treatment may threaten even high qualitatively performed surgical interventions. At present a great number of recommendations are worked out aimed at rehabilitation of this group of patients. But majority of them went out of date and require revision taking into account a stable renewal and perfection of arsenal of implants and surgical techniques. Therefore, novel innovation methods of rehabilitation treatment undoubtedly help practical physician to reach maximum number of positive medium-dated and remote results in treatment of this cohort of patients.

How shows long-term experience of treatment of acetabulum damage in the Republican Specialized Center of Joint & Hands Surgery, open reposition and interior stable-functional osteosynthesis with screws and plates prevail among different methods of surgical treatment that is determined by not only severity but also diversity of joints damage forming coxofemoral joint (Kutepov and Runkov, 1995; Milyukov and Pronskikh, 2006; Tikhilov, 2001; Giannoudis et al., 2005; Goulet and Bray, 1989; Hardinge, 1982; Harris et al., 2004; Heeg et al., 1987; 1990).

Some researches (e.g. Gorczyca et al., 1995) argue that positive results may be achieved only in anatomical reposition of bone splinters, especially in the loading area of acetabulum are. With that open reposition and internal fixation of acetabulum fragments are often accompanied by aseptic necrosis of hip joint head or cotyloid cavity, posttraumatic arthrosis, development of heterotopic ossification, fracture of metal constructions, iatrogenic injury of sciatic nerve, vessels, a high risk of thromboembolic complications. Besides, quality of life of patients in a period of treatment is sufficiently reducing, and their stay in hospital is sufficiently increasing (Ginnoudis et al., 2005; Kumar et al., 2005; Gorczyca et al., 1995; Goulet et al., 1994; Gruson and Moed, 2003; Hak et al., 1997; Harris, 1969; Heeg et al., 2000; Helfet et al., 1992; Helfet and Schmeling, 1994; Helfet and Schmeling, 1994).

Purpose of research was aimed at working out innovation methods of rehabilitation treatment of acetabulum damage.
Material and methods

Within the last 15 years in the Republican Specialized Center of Joint & Hand Surgery as well as in the Second Clinic of the Tashkent Medical Academy since 1997 till now surgical methods of treatment are preferred in fractures of socket of hip. During this period clinical roentgenologic analysis of histories of the cases of 180 patients with acetabulum fractures was conducted, of them were 147 males and 33 females, their age varied from 16 to 78. It was established that to the most typical mechanisms of arising acetabulum fractures belong as follows: direction of blow towards greater trochanter - 87, knee joint - 77, on foot - 11 and fractures occurred in 6 patients due to unknown causes.

Diagnosis of acetabulum damage presents specific difficulty because cup-like cavity locates in not easily accessible for examination area and clinical symptoms in the given area (painfulness, labored motion in cotyloid cavity, shortening, forced attitude of extremity) are not pathognomonic, they can be noted in other fractures of hypsiloid bones. Besides, careful clinical examination is not always possible due to severity of common state of the injured person - mental blankness, shock. Final diagnosis may be established based on poly-position roentgenography and multi-spiral tomography.

Results and discussion

Innovation aspect of rehabilitation methods of treatment of acetabulum damage (AD) is, first of all, in fixation of fragments with screws in 46 cases and additively in applying apparatus of dynamic unloading on joint in 22 cases. All that gave a possibility to load an extremity on the second day after operation with preservation of motion in joint in three planes: flexion - deflexion, adduction - abduction and rotation motions. The method of applying apparatus of dynamical unloading is based on innovation construction worked out by us. For this construction we received a positive decision of the Agency of Intellectual Property of the Republic of Uzbekistan.

Apparatus of dynamical unloading allowed sufficiently reduce a stay of patients in hospital. If skeletal traction through femoral epicondyles was put after osteosynthesis patients with acetabulum damage for 4-6 weeks, then after using of the worked out by us apparatus patients were activated on the second day after surgical treatment that permitted to load the injured extremity and accomplish functional motions in joint.

Summarizing it may be noted that a possibility of an early activation and reduction of a number of stay days in hospital occurred in 22 patients that additively were underwent applying of authors’ apparatus of dynamical unloading. An early static loading on extremity resulted in prevention of osteoporosis and increased a level of quality of life of patient.

How is given on Figure 1, algorithm of rehabilitation includes blocks of conservative (including blocks ambulatory, treatment at a health resort, medicamentous) and other methods of treatment of acetabulum damage as well as control block. Block of endoprosthetics of coxofemoral joint is also provided for in case of detection of signs of coxarthrosis.

According to algorithm elaborated by us, after surgical rehabilitation treatment we provided the block with using of innovation apparatus and block without its application. Algorithm of rehabilitation also includes block of detection of coxarthrosis signs that provides for analysis of results of rehabilitation treatment of injuries of cotyloid cavity.

Medicamentous methods of treatment with optimization of dosage, multiplication factor and prolongation of application of preparation aimed at prevention of thromboembolic
Complications in accordance with generally conventional international standards were also used by us in accomplishment of innovation rehabilitation methods of AD treatment. With that end of view the physiotherapeutic methods in postoperative period of rehabilitation starting from the third day have been used in our Center.
Therapeutic physical training in regime of forced loading optimizing an intensity of loading in dependence on type of acetabulum damage aimed at improvement of rehabilitation methods of treatment of AD was used. All that allowed shorten terms of unloading of extremity, perfect self-help service and recurrence of patients to functional motor activity.

Innovation algorithm of perfecting rehabilitation methods of treatment of AD contributes to expansion of an implementation sphere in traumatic surgery and orthopedics practice. It allows practical physicians to build a clear algorithm of postoperative rehabilitation for this complicated cohort of patients with AD.

References


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