Long-Term Results of Treatment of the Proximal Humerus Fractures

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ABSTRACT

The paper presents the analysis of long-term results of treatment of patients with fractures of the proximal humerus - the study of one of the most actual and controversial issues in traumatology. It is revealed that patients with fractures of the proximal humerus in 23% of cases have a reduction in bone density and a high risk of getting re-fractures in the next 10 years. Surgical treatment in up to 85% of cases has a positive long-term outcome.

Keywords: osteoporosis, osteopenia, fracture of the proximal humerus.

Fractures of the proximal humerus according to some authors make up 5% of all fractures of the bones of the skeleton and from 32 to 65% of fractures of the humerus [6, 8], and in 15% they are accompanied by a displacement of fragments [2]. The incidence of such fractures reaches 75-100 cases per 100.000 population per year, with the last 30 years an increase in the morbidity in almost 2 times was marked [7].

In 75% of cases of fractures of the proximal humerus they occur in patients over the age of 60 years, while for women they are in 2-3 times more often than in men [9, 10]. Unsatisfactory results of conservative treatment due to lower bone mineral density in older age groups reach up to 30-40% [4, 5]. Until now question of optimal choice of treatment of fractures of the proximal humerus remains debated [3].

All above mentioned underlines the relevance and explains the growing attention to the pathology of trauma.

Objective: to investigate the frequency of queries of patients with fractures of the proximal humerus in the city Yakutsk, to analyze the long-term results of treatment, to determine the level of bone density and using FRAX index to determine the 10-year probability of obtaining posterior fracture due to lower bone mineral density.

MATERIALS AND METHODS

A retrospective analysis of 164 case histories of patients, had been on outpatient treatment in the trauma station of Yakutsk and hospitalization in trauma and orthopedic department RB№2 TSEMP for 2012-2013, was done. The results of the treatment were assessed using an index scale of the shoulder joint function evaluation by E.A. Askerko and et al. [1]. Due to this scale using 8 parameters of the shoulder joint, the mean clinical index (MCI) is determined, unsatisfactory: MCI = 1.0-2.9; satisfactory: MCI = 3.0-3.9; good: MCI = 4. 0 or higher. X-ray absorptiometry using the GE Lunar iDXA densitometer was performed in 13 patients. Calculation of the FRAX index - method for estimating 10-year risk of fracture.

RESULTS AND DISCUSSION

For the medical care in emergency station in Yakutsk for 2012-2013 in total n - 52568 patients addressed, with diagnosed fracture of the proximal humerus n - 79 (0.16%) patients, including: n - 66 women and n - 16 men. More often fractures of the proximal humerus were in

the age group from 60-64 to 70-74 years n - 38 (48.1%) patients. In autumn and winter the frequency of calls was up to 50.6%, street injury prevailed in n – 53.1% of cases.

In total for 2012-2013 in trauma and orthopedic department RB№2 TSEMP 2972 people were hospitalized, with fractures of the proximal humerus - 85 people, among them women - 67,0% (n-57), men - 32,9% (n-28). More often fractures of the proximal humerus were in the age group from 60-64 to 70-74 years n - 25 (29.4%) patients. In autumn and winter the frequency of calls was up 21.0%, and in the spring and summer of 32.9%. More frequent were street traumas (fall from his own height) in the 85.0% of cases. In 85 patients the diagnosis was established as collateral "Osteoporosis" in 32 (37.6%).

Long-term results of treatment in 2013 were followed up in 16 patients after 1 and 3 months after conducted conservative 50% (n-8), and surgical treatment 50% (n-8). After 1 month results in all the studied patients were unsatisfactory (MCI after operative and conservative treatment 1.375 to 2.125), remained pain and limitation of movement in the shoulder joint. After 3 months after conducted conservative treatment: unsatisfactory - 2 (12.5%), satisfactory - 6 (37.5%). MCI after 3 months of conducted surgery: unsatisfactory -1 (6.2%), satisfactory - 6 (37.5%), good - 1 (6.2%).

According to a conducted survey of patients with X-densitometer Lunar iDXA osteoporosis was confirmed in 5 patients (38.5%), osteopenia in 8 patients (61.5%). FRAX index was calculated in 12 patients, high risk (FRAX index of 12 to 26.6%) was observed in 9 cases, moderate risk in 3 cases (FRAX index from 6.3 to 8.7%).

CONCLUSION

Thus, the frequency of requests for outpatient and inpatient care of patients with fractures of the proximal humerus in 2012 - 2013 amounted - 0.14% - 0.16%, respectively. Women addressed more frequently than men, with a maximum frequency peak of references in age from 60 to 74 years. In autumn and winter the frequency of calls increased. The results of treatment in 1 month in all studied patients were unsatisfactory. After 3 months after surgery, satisfactory and good results were observed in 87.5% of cases (n-7). After 3 months of conducted medical treatment satisfactory results have been observed in 75% of cases (n-6). Decrease in bone mineral density was found in 13 patients, osteoporosis (T-score <-2.5) was detected in 5 patients. From 12 patients, the index FRAX, in 9 (75%) had a higher risk (FRAX index of 12 to 26.6%) of fractures due to lower bone mineral density, in 3 (25%) patients, 10-year absolute fracture risk was defined as moderate (FRAX index from 6.3 to 12%). Stable osteosynthesis gives up to 85% of the positive long-term results of surgical treatment. Early diagnosis of osteoporosis and application of FRAX index can help to carry out prevention and reduce the frequency of recurrent fractures.

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