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(W35.10) **Remodeling in proximal part of the femur in patients of different age with dysplastic hip arthritis**

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Topicality

Despite the high efficiency of total hip arthroplasty (THA), as a method of medical rehabilitation of the patients with hip envolvement in cases of dysplastic hip arthritis (DHA), the long-term results are worse. Evident that changes in the hip area influent on the clinical outcome of THA. In DHA the loading of affected limb restricted due to contractures, shortening and pain. It is possible that in femur processes of osteoporosis and bone atrophy may be present.

Methodic

We study indexes of bone density on roentgenogramms of the 105 hips of the 88 patients with DHA. All hips have been divided on three groups according to the classification of Eftekhar et al. Types A, B, C were present in equal quantity. In each group patients have been divided on 5 age subgroups: younger 39 years, 40-49 years, 50-59 years, 60-69 years and older 70 years. We study indexes which describe bone density of the proximal femur. Cortical index (CI) characterizes thickness of the cortical bone on the level 10 cm lower the lesser trochanter. Singh's index (SI) describes a trabecular structure of the proximal metaepiphysis of the femur. Noble's index (NI) describes the form of the medullar canal of the femur. All of these indexes are estimated as normal bone density, osteopenia and osteoporosis.

Results

After statistical analysis we determined significant correlation between the age when the patients need for THA and type of acetabular deformation by Eftekhar et al. CI finds good bone quality with low percentage of osteopenia and osteoporosis in all Eftekhar's types and age groups. SI in opposite shows sings of poor bone quality in all groups. The mean SI value conforms to osteoporosis. NI finds the most of types "normal" and "smoke pipe". So in DHA proximal part of the femur have conical narrow canal with thick cortical bone in diaphysis and poor trabecular structure in metaepiphysis.

Discussion

We suppose that such features were developed due to nonphysiological loading in dysplastic hip joint. Restricted contact zone and valgus neck lead to remodeling in proximal methaphysis. Trabecular bundle near Adams arch is hypertrophical because it corresponds all the loading. But trabecular structure in great trochanter region is hypotrothical. We find such changing in all types and age groups and did not find significant difference in age groups. So we can conclude that compensation of bone structure developed in young age and after that for a long time may be constant. The sign of decompensation is poor characteristics of CI and NI. The duration of compensation of dysplastic femur remodeling depends on individual features of patient with DHA and not depends on patient's age.