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DO AGGRESSIVE COURSE OF THE DISEASE PREDICTS TOTAL JOINT REPLACEMENT SURGERY IN PATIENTS WITH RHEUMATOID ARTHRITIS?

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Background and purpose of the study: Rheumatoid arthritis is a chronic systemic autoimmune disease that causes chronic inflammation of joints manifesting with swelling, pain, synovitis and joint destruction. Higher work disability rates as well as functional decline are the causes of the knee and hip joint destruction leading to the total knee and total hip replacement surgery. Therefore, verifying the predictive factors of aggressive disease course would manage the need for joint arthroplasty in the future

The aim of the study was to analyze the factors being approved for measuring the severity of the disease - high grade inflammation evaluated as Das 28 (>5,1) , seropositivity, especially high titers of Anti CCP(above 500U), as well as smoking habits being proven to indicate more intense and harsh disease progression that would lead to the joint replacement surgery (TJR) in a cohort of rheumatoid arthritis (RA) patients .The other goal of the study was to evaluate TJR regarding to the age when RA was diagnosed and the age when complaints started, as well as erosive joint disease, synovitis in small joints, BMI, comorbidities (primary arterial hypertension, diabetes mellitus, stroke) in a cohort of rheumatoid arthritis patients.

Material and Methods: A case-control prospective study was conducted with one hundred fifteen RA patients, female 80.9%, aged from 21 to 84 years. Thirteen of them had joint replacement surgery after RA was diagnosed, and they were considered as a case group. The case and control groups were matched in age, gender and disease duration. Disease activity was measured by the Das28 score and the CDAI score; HAQ was evaluated. High disease activity was accepted as Das 28 score>5,1, but high levels of Anti CCP titers (above 500 U) were considered as the sign of aggressive disease course more prone to erosive process and joint destruction. Disease severity was assessed using X-ray proved erosions in the small hand and feet joints; musculoskeletal sonography was performed for the synovial joints of hands and feet. The additional information obtained was smoking history (years), BMI (body mass index), diabetes mellitus, stroke, primary arterial hypertension, and joint replacement surgery. A P value of less than 0.05 was used as the threshold for statistical significance. Statistical analysis was performed by using IBM SPSS 21.0.

Results: The patients with joint replacement surgery were mostly females (84.6%) of the average age of 59.23 (±13.0) years.The patients had a median (interquartile range) of the age when RA was diagnosed of 54 (48.0-69.5) years, but the median of the disease duration was 4 (1.5-10.0) years. The case and control group did not statistically differ by age (p=0.842), gender (p=0.715), disease duration (p=0.387), the age when RA was diagnosed (p=0.589) and the onset of the complaints (p=0.902). BMI was 28.06 (24.89-31.23) as calculated for the patients of the case group (p=0.247).

Amongst all joint replacement (total joint arthroplasty (TJA)) surgeries on the hip joints 38.5% were the unilateral hip joint replacements, 30.8 % were bilateral hip joint replacements; amongst knee joint replacement surgeries (total knee arthroplasty) 15.4 % were unilateral and 23.1% bilateral knee joint replacements, only 7,7% were unilateral surgeries of the small hand joint.

Disease activity evaluated by the Das 28 (CRP) score for the case group was 4.10 (3.6-5.4) but assessed by the CDAI -23(15.2-36.2). Disease activity in the case group did not differ from the control group, respectively the Das 28 score (p=0.367), the CDAI score (p=0.121). High grade inflammation assessed as Das 28>5.1 was observed only in 25 % of cases, Fisher exact test(p=1.000); seropositivity (RF and Anti CCP) was found in 76.9% patients with joint replacement therapy, however, it did not differ between the case and the control group, respectively for RF (p=0.198), for Anti CCP (p=0.848). High titers of anti CCP were obtained in 7 % of cases, Fisher exact test (p=0.296). HAQ did not differ between the case (1.5±0.84) and the control groups (1.2±0.81); (p=0.141). The joint erosive disease was found in 100% of the case group patients statistically differing from the Pearson Chi-Square of the control group (p<0.001). Synovitis was found equally in both groups (p=1.00) affecting 100% of the case group patients.

Amongst all case group patients 69.2% were suffering from primary arterial hypertension (p=0.764), 15.4% had experienced stroke (p=0.611), but 7.7% had such comorbidity as diabetes mellitus (p=0.457). Smoking was detected in 30.8% of cases (p=0.394), long-term smoking history was observed for 27.5 (19.75-45.0) years.

Conclusion: In our case-control study, high diseases activity evaluated as Das 28>5.1, high titers of Anti CCP (above 500 U) were not good predictors of the joint replacement therapy.Neither the age when RA was diagnosed nor the age when the complaints started, as well as seropositivity (Anti CCP, RF), synovitis in the small joints, comorbidities (primary arterial hypertension, stroke, diabetes mellitus), smoking history, and BMI had some association with the joint replacement surgery. However, total joint arthroplasty was associated with joint erosive disease evaluated by X-ray in the small joints of hands and feet

Biography

Evija Stumbra Stumberga is a Consultant Rheumatologist, Neurosonologist and Internal Medicine Specialist. She has completed her Post-doctoral studies in the Riga Stradins' University. She has graduated the Residency of Internal Medicine and Rheumatology. She has participated in the 'Erasmus Exchange Program' in the Whytenshaw Hospital, Rheumatology Department, Manchester, United Kingdom in 2011. She has got the AAS degree and had courses in Internal Medicine in Salzburg. She has been specialized in Neurosonology, worked as a Neurosonologist. She has got the DAAD degree in 2013 and has been worked in the Stroke Unit, Neurosonology Department in the Neurologisches Zentrum der Segeberger Kliniken Gruppe in Bad Segeberg, Germany. She has published clinical and research works concerning rheumatoid arthritis and atherosclerosis in reputed journals and has been served as an Editorial Board Member of repute.

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