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REVIEWS

INTERVERTEBRAL DISC DEGENERATION – A MYTH OR REALITY

V. Reshkova¹, R. Rashkov¹, D. Kalinova¹ and I. Milanov²

¹Clinic of Rheumatology, Medical University – Sofia

²SHATNP „Sv. Naum“, Medical University – Sofia

Summary. About 80% of people have had a low back pain at least once. The degenerative changes, which develop in the intervertebral disc, are result of the disturbed deposition of elastin and collagen, reduced glycosaminoglycan content, decreased water content in nucleus pulposus (from 90% to 60%), decreased vascularization and elasticity of the collagen structures. The dehydrated disc becomes thinner and more susceptible to trauma and compression. The pressure to annulus fibrosus increases as the results is a disc herniation and/or a disc protrusion. The symptomatic treatment of the low back pain is often insufficient. The development of new therapeutic approaches designed to treat the disc pathology is required. The aim of this study is to describe the pathophysiology of the processes, which develop in the intervertebral disc (molecular, cellular and tissue changes). It is important to describe the structural changes in the intervertebral disc and the basic principles of the tissue engineering.

Key words: annulus fibrosus, degeneration of the intervertebral disc, tissue engineering

DIAGNOSTIC AND PROGNOSTIC ROLE OF ANTI-CITRULLINATED PEPTIDE ANTIBODY (ACPA) IN RHEUMATOID ARTHRITIS

St. Kuzmanova

University Clinic of Rheumatology, UMBAL „Sv. Georgi“ – Plovdiv

Summary. Anticitrullinated protein antibodies (ACPA) are recognized as the most specific markers for rheumatoid arthritis. The presence or absence of antibodies to citrullinated peptides/proteins is an important parameter that helps a clinician to set a diagnosis of early rheumatoid arthritis, and hence, initial treatment. There are several commercial tests available to measure ACPA levels, although it can be difficult to decide, what the best test for a given clinical question is. We analyzed literature data in which the diagnostic and other properties of various ACPA test are compared. The results show that for diagnostic purposes the CCP2 (anti-cyclic citrullinated peptide 2) test has the highest specificity, the highest sensitivity in stratified studies and the highest positive predictive value. For the prediction of future joint destruction the CCP2, MCV (anti-mutated citrullinated vimentin), and CCP3 tests may be used. The ability to predict the probability of not achieving sustained disease-modifying antirheumatic drug-free remission was the highest for CCP2 test. In some studies, however, significant decrease of anti-CCP2 and anti-MCV titers at 18 months and/or 24 months of infliximab treatment have been reported. Finally, at the moment, we have to conclude that in rheumatoid arthritis patients anti-CCP2 and anti-CCP3, and possibly the anti-mutated citrullinated vimentin, are not significantly influenced by TNF α blocking agents.

Key words: rheumatoid arthritis, ACPA, CCP, MCV

NEWS ON THE PATHOGENESIS OF OSTHEOARTHROSIS

M. Panchovska-Mocheva¹, M. Ivanova² and R. Stoilov²

¹Department of Propedeutics of Internal Diseases, Medical University – Plovdiv

²UMHAT “Sv. Iv. Rilski” – Sofia

Summary. Osteoarthritis is a multifactor inflammatory degenerative joint disease that is conditioned by complex interactions between joint cartilage and peri-joint tissues. The osteoarthritis comprises almost 50% of all rheumatoid diseases and causes a significant rate of work incapability, invalidization and impaired quality of life. In the last years, new data for the pathogenesis of disease were collected. It is proven that the destruction of joint cartilage is conditioned mostly by proinflammatory cytokines. Parallely with inflammatory processes and the destruction of cartilage, also synovial membrane, underlying tissue, muscles and tendons, and interjoint mast tissue are involved. It was found that the processes of cartilage regeneration can be associated with the differentiation of synoviocytes to the chondrogenic and osteogenic cells.

Key words: osteoarthritis, pathogenesis, cartilage, peri-joint tissues

RESISTIN IN RHEUMATOID ARTHRITIS AND OTHER AUTOIMMUNE RHEUMATIC DISEASES

R. Shumnalieva, S. Monov, Zl. Kolarov and R. Rashkov

Clinic of Rheumatology, Medical University – Sofia

Summary. Resistin is a protein secreted by the fat cells (adipocytes). As a cytokine-like mediator, it participates in the pathogenesis of obesity and insulin resistance, as well as in the immune response formation and bone remodeling. Its levels are increased in areas of local inflammation. This study explores the potentials of correlation between resistin serum levels and the markers of clinical, laboratory, incl. immunological activity of rheumatoid arthritis. The results of the studies to date indicate that resistin plays the role of a proinflammatory cytokine in the pathogenesis of the disease.

Key words: resistin, adipocytes, cytokines, insulin resistance, rheumatoid arthritis

ORIGINAL ARTICLES

RELATION BETWEEN THE ANTIVIRUS AND MYOSITIS-ASSOCIATED ANTIBODIES IN THE GROUP OF PATIENTS WITH AUTOIMMUNE MYOSITIS

D. Kalinova¹, V. Kovalyova³, V. Reshkova¹, E. Ivanova-Todorova², D. Kyurkshiev² and R. Rashkov¹

¹Clinic of Rheumatology, UMHAT “Sv. Iv. Rilski” – Sofia

²Medical and Diagnostic Clinical Laboratory and Immunology, UMHAT “Sv. Iv. Rilski” – Sofia

³Science and Application Center of Military Epidemiology and Hygiene, Department of Virology, MMA – Sofia

Summary. Considerable evidences indicate that the viruses may be important environmental factors in the pathogenesis of the connective tissue diseases – systemic lupus erythematoses, systemic sclerosis, myositis, etc. Viruses activate a humoral immune response, characterized by an early rise of antigen-specific IgM antibodies (Abs), and cellular immune response by activating antigen-specific T lymphocytes. Cytotoxic lymphocytes release granzyme B/perforin, which modify self proteins. Modified proteins become immunogenetic and induce the synthesis of autoantibodies (aAbs). Autoimmune myositis (AIM) is a syndrome, characterized by involvement of the cellular and humoral immune systems in skeletal muscle pathology, response to immunotherapies and the presence of aAbs – myositis-specific (MSAs) and myositis-associated (MAAs) aAbs. The objective of this study was to determine prevalence of antibodies (Abs) IgM against some viruses, respectively the presence of a viral infection, and to analyse association between antiviral Abs and MSAs, MAAs aAbs in a group of patients with AIM in Bulgarian population. Sera were collected from 37 patients with myositis as diagnoses were determined using Bohan and Peter classification (1975) and 30 health controls, after informed written consent. Sera were tested by enzyme linked immunosorbent assay for Abs IgM against Influenza A and B, Parainfluenza, Coxsackie virus, cytomegalovirus, Epstein-Barr virus, Parvovirus and HIV. MSAs and MAAs were determined by Immunoblot test and enzyme linked immunosorbent assay. Chi-square analysis, Fisher's exact test was used for to ascertain the association between antiviral Abs and myositis aAbs, as p value didn't exceed 0.05. Antibodies IgM against some viruses were present in 45% of patients with AIM and in 19% in controls ($p = 0.028$). It was observed Abs against Influenza A and B, Parainfluenza, Coxsackie virus, EBV and CMV in patients with myositis. It wasn't found statistically significance in comparing frequency of the separate antiviral Abs between group of patients and control group ($p > 0.05$). MSAs and MAAs were expressed in 62% of patients with positive antiviral Abs. It was determined statistically significant difference between a group with antiviral Abs + myositis aAbs and a group with antiviral Abs – myositis aAbs ($p = 0.031$). The most common myositis aAbs were anti-Ro52 (16%), anti-dsDNA (8%), anti-Jo-1 (5%), anti-Ro60 (5%). Other aAbs were detected in less patients with myositis. Virus infections can induce autoimmune response by various mechanisms including molecular mimicry, epitope spreading, release of cryptic epitopes, and expression of “neoantigens”, which are accompanied by production of aAbs. The results in our study suggest the role of viruses in etiopathogenesis of AIM.

Key words: antiviral antibodies, myositis-associated antibodies, autoimmune myositis

USAGE OF MUSCULOSKELETAL SONOGRAPHY IN PATIENTS WITH RHEUMATOID ARTHRITIS – OUR EXPERIENCE

I. Sheytanov¹, R. Rashkov¹, Tsv. Petranova¹, S. Monov¹, A. Batalov², P. Todorov² and R. Nestorova³

¹Clinic of Rheumatology, Medical University – Sofia

²Clinic of Rheumatology, Medical University – Plovdiv

³Rheumatologic Center “Sv. Irina” - Sofia

Summary. Rheumatoid arthritis (RA) is the most common inflammatory joint disease. Its medical and social importance is determined by the significant incidence of RA, its long persistence and the severe disorders that it causes in the musculoskeletal system function with the resulting effects. Despite serious prognosis of the disease, progress in its early diagnosis and adequate treatment remains unsatisfactory. In the past decade ultrasound (US) has become an essential diagnostic method for evaluation of musculoskeletal diseases with US imaging. Advances in technology, together with the development of high frequency transducers, the possibilities of colour/power Doppler examination and image expand function contributed to the progressive development of this methodology. Herein, we present the diagnostic possibilities of musculoskeletal sonography in patients with rheumatoid arthritis. This is an instrumental method that gives precise information about pathological changes occurring in all joint structures in patients with rheumatoid arthritis and in comparison with physical examination and conventional radiographs shows a number of advantages. In conclusion, we recommend joint ultrasound to be used routinely in everyday clinical practice of specialist rheumatologist for diagnosis, assessment of activity and monitoring of therapeutic response in patients with rheumatoid arthritis.

Key words: rheumatoid arthritis, ultrasound, musculoskeletal sonography

THE PLACE OF EPIDURAL APPLICATION OF METHYLPREDNISOLONE IN THE TREATMENT OF DISC DEGENERATION COMPLICATIONS

V. Reshkova¹, R. Rashkov¹, D. Kalinova¹ and I. Milanov²

¹Clinic of Rheumatology, Medical University – Sofia

²SHATNP „Sv. Naum”, Medical University – Sofia

Summary. Differential diagnosis of pain low in the back includes various conditions. Lumbar apophyseal joint damage and intervertebral disc degeneration cause low back pain. The most common clinical symptoms are lumbar radicular pain and restricted range of motion. Epidural applications of water-soluble steroids are used successfully to relieve the lumbar radicular pain, the oedema of the nerve root compression and its inflammation. The objective of this study is to present the results of treatment of acute lumbar pain with epidural applications of steroids. 15 patients with complaints of acute lumbar pain and limited range of motion were enrolled. 3 epidural injections with Methylprednisolone 60 mg were applied every second day. After one month of treatment, the decrease the local and radicular pains with 60-80% is observed.

Key words: disc protrusion/herniation, epidural application

COMBINED TREATMENT WITH CORTICOSTEROIDS, MELPHALAN AND COLCHICINE IN PATIENTS WITH AMYLOIDOSIS TYPE AL. A TEN-YEAR FOLLOW-UP STUDY

B. Bogov, R. Krasteva, R. Djerassi, M. Ljubomirova and A. Kundurdjiev

Clinic of Nephrology, UMHAT “Alexandrovska” – Sofia

Summary. Amyloidosis is a well-defined disease entity characterized by extracellular deposition of protein-like matter. The renal involvement is usually associated with the development of proteinuria and renal failure. The authors present five patients with AL amyloidosis treated with triple combination (Melphalan, corticosteroids and Colchicine) evaluated for disease progression. In 4/5 patients the chemotherapy lead to marked improvement of the nephrotic syndrome without deterioration in renal function. In one female patient we observed no effect of the combined treatment on proteinuria at the background of stable renal, hepatic and cardiac functions. We observed no toxicities and no adverse events.

Key words: a amyloidosis, corticosteroids, melphalan, colchicine, treatment

REHABILITATION AND OCCUPATIONAL THERAPY WITH POLYARTHROSIS PATIENTS

M. Krastanova¹, D. Vacheva¹, A. Mircheva¹ and Kr. Stefanova²

¹Physical and Rehabilitation Medical Clinic, UMHAT "Dr. G. Stranski" – Pleven

²Clinic of Cardiology and Rheumatology, UMHAT "Dr. G. Stranski" – Pleven

Summary. Over the last years the number of patients with joints affected by osteoarthritis has been increasing. The pathology is moving into a younger age and more and more patients are becoming handicapped and physically unable to work because of it during the active years of their lives. Aim of this report: to trace the effect of the applied physio rehabilitational and occupational therapy program with patients whose musculoskeletal system is affected in multiple ways. For the period between 2010 and 2012, 247 patients with polyarthrosis underwent treatment in the physical and rehabilitation clinic. In order to track the progress, measurements (the angle and the centimeter movement of the affected joints and the lumbosacral part of the spine) were taken at the beginning and at the end of the treatment, along with a pain measurement test and a daily activities test. The physio rehabilitational program includes: magnetotherapy, treatment with medium frequency electrical currents, ultrasound therapy, therapeutic massage and kinesitherapy. We applied the Wilcoxon rank test (a statistics method for analysis and spreading of non-parametric data) to the data from the survey. Undergoing physio rehabilitational treatment for patients whose musculoskeletal system is affected in multiple ways supports and enhances the medicament treatment. This complex approach results in significant improvement of the daily activities and the quality of life of the patients.

Key words: osteoarthritis, rheumatology, physical therapy, rehabilitation, occupational therapy