A New Look at the Physiological Management of Rheumatoid Arthritis

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Abstract

Rheumatoid arthritis is an inflammatory disease of unknown etiology in which the adverse vascular effects are perpetuated by activity which causes pain, and by cooling of the body. These conditions stimulate a reflex sympathetic neurovascular response, or reflex sympathetic dystrophy, which interferes with the circulation and nutrition of the synovia, the periarticular bone and the connective tissues around the joints. The reflex sympathetic dystrophy causes arteriolar constriction reducing blood flow through the capillaries, dilatation of arteriovenous anastomoses bypassing the capillary beds, venous constriction causing venous congestion and backflow into the capillaries with stasis and edema. As a result of this dystrophic response the oxygenation and nutrition of the joints is diminished, stasis causes a retention of metabolites, the pO₂ and pH are decreased, the pCO₂ increased, and edema persists in the area. All of these responses aggravate and prolong the inflammation. Removal of the critical stimuli of mechanical pain and cold allows a more normal circulation and the inflammation subsides. This response in bone promotes osteoporosis. In connective tissue the dystrophic response produces edema with increased fibrosis or distortion of tissues in the presence of prolonged stretch.

Cooling which stimulates the dystrophic response occurs whenever environmental temperatures are below 27°C.

The goals of the physiatric management of rheumatoid arthritis are the preservation of function and the control of pain. Preservation of function requires the preservation of connective tissue mobility and stability, and the integrity of bone and cartilage.

A warm environment with a temperature of 28°C or above is provided for the rheumatoid patient. Activity is restricted to a level that does not cause pain nor induce either a local or general inflammatory response. In acute disease total rest may be required with splinting of the arthritic joints until the inflammation has subsided. Then activity below the threshold of pain is instituted progressively as long as it does not aggravate inflammation. Thermotherapy is used to improve circulation nutrition and metabolism. Mobility is maintained by daily painfree passive range of motion with gentle massage to areas of edema. Resistance exercise is not used across any inflamed joint because that produces nociceptive stimuli which aggravate the reflex sympathetic dystrophy. The patient who follows this program can increase his activities after the inflammation of rheumatoid arthritis has subsided, at least to the sedentary level without experiencing the progressive destructive effects which are seen when the inflammation persists.

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