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Cardiac rehabilitation and changes in serum and salivary HS-CRP among male patients with coronary artery disease

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Aim: Cardiac rehabilitation is a key part in the management of coronary risk factors by its anti inflammatory effects. However, the effect of exercise training programs on salivary concentrations of high-sensitivity C-reactive protein (hs-CRP) in patients with coronary artery disease has not been well studied. The objective of this study was to evaluate the effect of an exercise based cardiac rehabilitation program on serum and salivary concentrations of hs-CRP, in relation to the anthropometric measurements of obesity and the relationship between salivary and serum levels of hs-CRP in male patients who received coronary artery bypass grafting (CABG).

Materials & Methods: Forty 45 to 75 year old male volunteers with coronary artery disease participated in 6-8 weeks of moderate intensity aerobic exercise training consisting of 45 min sessions of treadmill, stationary bicycle and arm bicycle. Anthropometric measurements of obesity (body mass index (BMI), waist, hip circumference, waist- hip and waist-height ratio), levels of hs-CRP concentration in the serum, stimulated and non stimulated saliva were measured at the beginning, in the middle and at the end of exercise sessions.

Results: All anthropometric measurements increased ($P < 0.05$) following cardiac rehabilitation except waist-hip ratio ($P > 0.05$). The exercise training induced reduction in serum CRP levels by 36% independent of changes in anthropometric measurements. Stimulated and non-stimulated salivary hs-CRP concentrations decreased to 68% and 54% respectively, after 24 sessions of exercise-based cardiac rehabilitation. Non stimulated salivary hs-CRP levels appear to be correlated to serum levels of hs-CRP at baseline and following exercise training.

Conclusions: 24 sessions of exercise based cardiac rehabilitation seem to be effective to improve serum and salivary hs-CRP concentrations independent of anthropometric measurements.

Clinical Significance: Non stimulated salivary hs-CRP measurement could be a surrogate for blood measurement for determining cardiovascular disease risk expressed by hs-CRP during cardiac rehabilitation in male patients with CAD.

Biography

Boshra Jamshidpour has BS and MSc degree in Physical Therapy from Tehran University of Medical Sciences. She is currently a PhD candidate studying Physical Therapy at Tarbiat Modares University, Iran. Her main research area is the exercise science. She is interested in examining changes associated with long- and short-term exercise training and determines the role of metabolic changes in improving health. She has published four papers in reputed journals and has been writing a paper about exercise in diabetic nephropathy patients. She has teaching experience for undergraduate students. She taught exercise prescription for cardiovascular rehabilitation course.

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