저항성 운동이 고혈압 전단계 및 고혈압 환자의 동맥경직도에 미치는 영향

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Abstract

Ahn, E.S., Ro, D.I. Effects of resistance exercise on arterial stiffness in pre and hypertensive subjects. *Exercise Science*. 19(3): 301-210, 2010. Increased arterial stiffness as an independent risk factor for cardiovascular disease, is increased in hypertensive patients. Regular aerobic exercise reduces arterial stiffness, while resistance exercise may increase arterial stiffness, but this is not a universal finding. The purpose of this study was to determine the impact of resistance exercise on arterial stiffness in untreated pre and hypertensive subjects. Twenty-one pre and hypertensive subjects(mean age 61 ± 5 years) were randomly assigned to two group. Resistance exercise group(n=11) was performed the supervised resistance exercise program with light to moderate intensity(40-60% of 1 RM), 9 resistance exercises, 12 repetitions, 2sets, 3 times per week, for 12weeks. Control group(n=10) was maintained previous lifestyle. Muscle strength and carotid-femoral pulse wave velocity, an index of arterial stiffness, were measured at baseline and after intervention. Muscle strengthens were significantly increased in exercise group($p < .05$). Systolic blood pressure and mean arterial pressure were significantly decreased in exercise group($p < .05$). Carotid-femoral pulse wave velocity was significantly increased in exercise group($p < .05$), but not control group. In conclusion, light to moderate intensity resistance exercise has negative effect on arterial stiffness in untreated pre and hypertensive subjects.

Key words : resistance exercise, arterial stiffness, hypertension

초 록

안의수, 노동인. 저항성 운동이 고혈압 전단계 및 고혈압 환자의 동맥경직도에 미치는 영향. *운동과학* 제19권 제3호. 301-310, 2010. 동맥경직도는 심혈관계 질환의 독립적 예측인자로서, 고혈압 환자에서 증가되어 있다. 규칙적인 유산소 운동은 동맥경직도를 감소시키는데 반해, 저항성 운동 후 동맥경직도는 오히려 증가되었다는 연구가 많이 제시되고 있지만, 연구마다 다양한 결과를 제시하고 있다. 따라서 본 연구에서는 고혈압 전단계 및 고혈압 환자를 대상으로 12주간의 저항성 운동이 동맥경직도에 미치는 효과에 대해 알아보하고자 하였다. 연구 대상자는 현재 약물 치료를 받고 있지 않는 고혈압 전단계 및 고혈압 환자 21명을 대상으로 하였으며, 평균연령은 61 ± 5 세였다. 저항성 운동그룹(n=11)은 1RM의 40-60% 강도로, 총 9종목의 운동을 12회 반복, 2세트 운동을 12주간 주 3회 실시하였고, 통제그룹(n=10)은 저항성 운동으로의 참여를 제한하고 평소 생활습관을 유지하도록 하였다. 저항성 운동 항목은 다음과 같다.(상체 : chest press, lat pull down, arm curl, back extension, torso 하체 : leg press, leg extension, leg curl). 연구결과, 저항성 운동군에서 back extension을 제외한 모든 최대근력 이 유의하게 증가하였으며, 수축기혈압과 평균동맥압이 유의하게 감소하였다 ($p < .05$). 또한 경동맥 배퇴동맥 맥파전파속도는 저항성 운동 후 유의한 증가를 보였다 ($p < .05$). 결론적으로, 고혈압 전단계 및 고혈압 환자에게 저 중강도의 저항성 운동은 동맥경직도에 있어 부정적인 영향을 미치는 것으로 나타났다.

주요어 : 저항성 운동, 동맥경직도, 고혈압

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