

Effect of multidisciplinary treatment on Type D personality in obese adolescents and its association with cardiovascular risk

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Introduction.

Individuals with Type D personality tend to experience negative emotions (negative affectivity, NA) and to inhibit self-expression in social interaction (social inhibition, SI). Type D has been associated with increased cardiovascular risk in adults and obese adolescents. Obese adolescents display additional cardiovascular risk factors, including vascular stiffness, endothelial dysfunction, and reduced levels of endothelial progenitor cells (EPC). However, little is known about the effect of behavioural intervention on Type D personality characteristics in growing adolescent girls and boys.

Methods.

Two cohorts of obese adolescents were recruited: a residentially treated intervention group (n= 33; 15.4 ± 1.5 years, 24 girls and 9 boys; BMI: 36.44 ± 4.82 kg/m²), receiving supervised diet and exercise training under psychological guidance and an ambulantly treated usual care group (n= 28; 15.1 ± 1.2 years, 22 girls and 6 boys; BMI: 36.72 ± 5.83 kg/m²). Changes in body mass, cardiorespiratory fitness, microvascular endothelial function and circulating EPC were evaluated after 5 months and at the end of the 10 month program. Established psychological questionnaires were filled in by the participants, including the DS14 measure of Type D.

Results.

At baseline scores for NA correlated to vascular stiffness (p=0.047) and SI were associated with decreased numbers of EPC (r=-.39; p= 0.04) independently of BMI. Residential treatment improved BMI and body fat percentage and increased exercise capacity (p<0.001 after 5 and 10 months). Microvascular endothelial function also improved in the intervention group (p= 0.04 at 10 months). Scores for Type D personality decreased significantly in the intervention group (p 0.004). This was mainly explained by a significant decrease in NA (p=0.037), while the decrease in SI did not reach statistical significance (p=0.057). The association NA and vascular stiffness and between numbers of EPC and SI disappeared after treatment.

Conclusions.

In obese adolescents, characteristics of Type D personality are associated with cardiovascular risk factors. The level of Type D personality characteristics in adolescents was reduced by a multidisciplinary treatment program, and the association of Type D with cardiovascular risk factors disappeared after significant weight loss and improvement of exercise tolerance.