

# Whether Obesity is Associated with Peripheral Arterial Disease

Milos Maksimovic\*

Faculty of Medicine, Institute of Hygiene and Medical Ecology, University of Belgrade, Serbia

There are many risk factors for Peripheral Arterial Disease (PAD), such as smoking, excessive alcohol consumption, diet, physical inactivity, etc. In the last few decades obesity has become public health problem in many countries, followed by many clinical and public health consequences [1]. It is estimated that more than 1 billion adults worldwide are overweight [2]. If the current trend continues, this number will increase to 1.5 billion by 2015 [2].

Many studies showed relationship between obesity and stroke and coronary heart disease [3-5]. Taking into account that obesity, especially abdominal, influences atherosclerotic process it could be expected that obesity is also associated with PAD. However, data on relationship between PAD and obesity are not consistent. Some authors found positive relationship between obesity and PAD, but this association depended on what measure for obesity was used [6]. In the study of Planas et al. [6] PAD was related with waist-hip ratio, but it was not related to Body Mass Index (BMI). It is suggested that BMI is not a proper indicator of obesity in subjects  $\geq 60$  years old [7,8]. In old people, because of loss of lean body mass, BMI can remain unchanged or even decrease although adiposity increase [9]. In Ix et al. study [10], in a large sample of older persons who reported good health status and were never smokers, greater BMI in midlife and in older age were associated with PAD incidence and prevalence. The authors postulated that previous findings of no association could be explained by confounding effect of comorbidity and smoking. In a study conducted in Belgrade [11], patients with PAD had mean BMI about 26.0 kg/m<sup>2</sup>, mean body fat about 29.0% and mean waist circumference about 92.0 cm in women and 98.0 cm in men. In the same study general obesity, abdominal obesity and percent of body fat were not related to the severity of PAD. According to Lu [12] waist to hip ratio was associated with PAD in both sexes but waist circumference was associated with PVD only in women.

In the last decade many authors underlined inverse relationship between obesity and mortality in patients with cardiovascular diseases including PAD, called "obesity paradox". In a study conducted by Golledge et al. [13], underweight was highly predictive of early mortality in patients with PAD. Lavie [14] suggested that the increased BMI can be protective factor for cardiovascular disease generally [14]. In a study including 2392 patients with PAD, Galal et al. [15] found that the overall mortality rate was lower in group of obese patients in comparison with underweight, normal and overweight patients [15]. This paradoxical association was partly explained by the increasing prevalence of chronic obstructive pulmonary disease among individuals with a lower BMI.

Evidently, new studies are needed to explain possible association of obesity with PAD and its outcomes.

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\*Corresponding author: Milos Maksimovic, Faculty of Medicine, Institute of Hygiene and Medical Ecology, University of Belgrade, Serbia, Tel: + 381 11 3612 762; Fax: + 381 11 2682 852; E-mail: milos.maksimovic@mhub.bg.ac.rs

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