



The prevalence of peripheral arterial disease in middle-aged people with intellectual disabilities



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ABSTRACT

Peripheral arterial disease (PAD) is a manifestation of atherosclerosis below the bifurcation of the abdominal aorta. PAD increases the risk of cardiovascular disease and associated mortality. Little is known about the prevalence of PAD in middle-aged persons with intellectual disabilities (ID).

We determined the prevalence of PAD among people with ID aged 40–59 years. Independent associations between PAD and patient and care characteristics were explored.

A multi-center cross-sectional observational study was conducted in four care providing agencies for people with ID in the Netherlands. We included 407 participants with mild to profound ID aged 40–59 years, receiving medical care from specialized ID physicians. The ankle-brachial index was used to diagnose PAD.

The overall prevalence of PAD was 8.4% (95% CI = 6.0–11.4%), with no significant differences between age groups 40–49 years (8.2%) and 50–59 years (8.5%). None of the participants had been diagnosed with PAD prior to this study and only one participant with PAD had PAD-related symptoms (1/34). Wheelchair dependence was independently associated with PAD (OR = 5.43).

Prevalence of PAD among people with ID is high, which is especially remarkable in age group 40–49 years. Physicians need to be aware of this high prevalence of PAD and the increased risk of cardiovascular disease in (young) people with ID.

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1. Introduction

Peripheral arterial disease (PAD) is a manifestation of atherosclerosis below the bifurcation of the abdominal aorta (Hirsch et al., 2001; Stoffers, Rinkens, Kester, Kaiser, & Knotterus, 1996). Most patients with PAD are asymptomatic; they do not experience intermittent claudication or deteriorated wound healing (Hooi et al., 2001; Rutgers et al., 1998). Both symptomatic and asymptomatic PAD are associated with an unfavorable cardiovascular prognosis in the general population, with an increased morbidity and mortality, comparable to patients with coronary heart disease (Cimminiello et al., 2010). PAD is associated with a two- to six-fold increase in death from cardiovascular causes (Cimminiello et al., 2010) and doubles the ten-year coronary heart disease and cardiovascular mortality event rate in each Framingham risk category (Fowkes et al., 2008). Determination of PAD is supplementary to the Framingham risk categories and improves the accuracy of the prediction of the cardiovascular risk. PAD and cardiovascular diseases in general share the same well-known risk factors. Detection of PAD provides the opportunity to prevent worsening of atherosclerosis and cardiovascular disease (Price et al., 1999; Robless, Mikhailidis, & Sansby, 2001). Prevalence of PAD and associated factors have not been studied before in younger adults with intellectual disability (ID).

Several studies have shown that people with ID have an increased prevalence of cardiovascular risk factors, which leads to an increased prevalence of PAD (De Winter, Magilsen, van Alfen, Willemsen, & Evenhuis, 2011). Older people with ID show more overweight and obesity (De Winter, Bastiaanse, Hilgenkamp, Evenhuis, & Echteld, 2012b). Many individuals have a sedentary lifestyle, others are physically inactive due to cerebral palsy and other genetic or acquired causes (Hilgenkamp, Reis, Van Wijck, & Evenhuis, 2011; Hilgenkamp, Van Wijck, & Evenhuis, 2012). The widespread use of antipsychotics among people with ID may increase the cardiovascular risk (Cahn et al., 2008; De Kuijper et al., 2011; Van Schroyenstien Lantman-De Valk et al., 1995). Life expectancy of people with ID is increasing. However, there are conflicting results concerning the prevalence of hypertension, hypercholesterolemia and metabolic syndrome among people with ID; the biggest and most recent study by the Winter et al. shows a prevalence comparable to the general Dutch population (De Winter, Bastiaanse, Hilgenkamp, Evenhuis, & Echteld, 2012a).

Until now only one study by the Winter et al. has addressed the prevalence of PAD among people with ID in a population nearly representative for the total older 50+ Dutch ID population. This recently published study among 629 people with ID living in the Netherlands aged 50 years and over, shows a prevalence of PAD of 20.7% (De Winter et al., 2013). This prevalence is increased compared to the general Dutch population. Cimminiello et al. (2011) found a prevalence of 8.1% in the general Dutch population (males aged ≥ 45 years and females aged ≥ 55 years) with at least one risk factor for cardiovascular disease. Especially in the youngest age group (50–59 years) the increased prevalence among people with ID is remarkable; 15.9% in the ID-population against 6.6% in the general population (Cimminiello et al., 2011; De Winter et al., 2013). These outcomes inspired us to hypothesize that PAD presents at a younger age among people with ID in comparison to comparable age groups in the general population, and to set up a new study to investigate the prevalence of PAD in age-groups 40–49 years and 50–59 years. To add to the results of the study by the Winter et al. we conducted our research in a population with ID living in a care providing agency receiving care of an ID physician.

Furthermore, intermittent claudication might be under detected in this population. De Winter et al. (2013) found no prior diagnosis of PAD in 97% of the participants with PAD. In this study we will investigate the prevalence of PAD in people with ID aged 40–59 years and the number of symptomatic and asymptomatic patients. Independently associated factors for PAD were identified by including sex, age, level of ID, etiology and residential setting. We investigated the association between PAD and risk factors for PAD and cardiovascular diseases in general: smoking, mobility and medication. To be more specific: medication which increases the risk of cardiovascular diseases (antipsychotics and anticonvulsants) and medication used to treat cardiovascular diseases (antihypertensive drugs, cholesterol inhibitors, anticoagulant drugs and antidiabetics).

2. Methods

2.1. Study design and participants

This was a multi-center, cross-sectional observational study, conducted in four care providing agencies for people with ID in the Netherlands. The participants were residential clients with mild to profound intellectual disabilities, aged 40–59 years, who had an indication for reimbursement of specialized medical care by ID physicians under the Dutch Act on Exceptional Medical Expenses (AWBZ). This is a selected group needing care rather than support of independency, because of multiple comorbidity, more severe ID, or significant psychiatric or behavioral problems. All clients of the selected age group of three care providing agencies were invited. In the fourth care providing agency, which had a large number of clients aged 40–59 years, randomization was applied by using www.random.org to invite 200 clients. This led to a total of 812 invited clients. Informed consent was obtained from their legal guardians. Ethical clearance was provided by the Medical Ethics Committee of the Erasmus MC Rotterdam (MEC-2012-099) and by the local ethical committees and the boards of management of the four care providing agencies.

2.2. Data collection

For all participants, the following characteristics were collected from their medical files and/or their caretakers: sex, age, level and etiology (Down syndrome yes/no) of ID, residential setting, mobility, smoking habits and medication. Level of ID

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