Original Article

Prognostic Value of the Ankle-Brachial Index in Patients Undergoing Drug-Eluting Stent Implantation

Hack-Lyoung Kim, Jae-Bin Seo, Woo-Young Chung, Joo-Hee Zo, Myung-A Kim, Sang-Hyun Kim

Division of Cardiology, Department of Internal Medicine, Seoul National University Boramae Medical Center, Seoul National University College of Medicine, Seoul, Korea

Aim: Limited data are available regarding the prognostic value of the brachial-ankle index (ABI) in patients with a history of drug-eluting stent (DES) implantation. This study sought to determine the relationship between the ABI and coronary events in patients with DES.

Methods: A total of 322 patients who underwent both DES implantation and ABI measurement during initial hospitalization were reviewed. Cardiovascular events, including cardiac death, non-fatal acute myocardial infarction and coronary revascularization, were assessed.

Results: During the mean follow-up period of 298 ± 58 days, there were 32 cases of cardiovascular events (9.9%). The patients with a lower ABI had more events (2.8% in the highest tertile versus 10.3% in the middle tertile versus 16.8% in the lowest tertile, \( p = 0.001 \)). According to the multiple Cox regression analysis, the ABI was independently associated with clinical events (the lowest tertile versus the highest tertile of ABI, hazard ratio: 6.35, 95% confidence interval: 1.37-29.32, \( p = 0.018 \)). In addition, the cumulative event rate according to the ABI tertile differed significantly in the Kaplan-Meier curves (log-rank \( p = 0.009 \)), whereas the receiver-operating characteristic curve analysis showed a sensitivity and specificity for predicting cardiovascular events of 62.5% and 66.2%, respectively, with an ABI of 1.057 as the best cut-off value.

Conclusions: A lower ABI is associated with poorer cardiovascular outcomes in patients with DES implantation. As a simple and non-invasive parameter, the ABI has the benefit of predicting future cardiovascular events in this population.


Key words: Ankle-brachial index, Drug-eluting stents, Percutaneous transluminal coronary angioplasty, Prognosis

Introduction

Atherosclerosis is a systemic disease that affects the entire arterial tree. The risk factors for atherosclerosis are the same as those for peripheral artery disease (PAD) and coronary artery disease (CAD). Therefore, PAD is frequently observed in patients with CAD, with the converse also being true\(^1,2\). It has also been reported that PAD is diagnosed using non-invasive methods in >20% of patients undergoing percutaneous intervention (PCI) and 32% of patients with severe CAD\(^3\). PAD can be easily and reliably diagnosed by measuring the ankle-brachial index (ABI), which has been used for many years in vascular practice\(^4\). In addition, the ABI represents the generalized atherosclerotic burden throughout the body, with a strong association with higher rates of concomitant coronary and cerebrovascular disease\(^5\). Moreover, previous studies have demonstrated that a low ABI is associated with an increased risk of cardiovascular morbidity and mortality in the general population\(^6,7\), and the ABI has recently been reported to be a valuable prognostic marker in patients with acute coronary syndrome (ACS) and those undergoing coronary bypass surgery.
in the absence of clinically evident PAD\textsuperscript{8, 9}. These associations have been shown to be significant even after controlling for risk factors, suggesting that the ABI plays an independent role as a predictor of cardiovascular events. Nevertheless, there is a lack of data regarding the impact of the ABI on cardiovascular outcomes in patients undergoing PCI with drug-eluting stents (DES). Considering that most revascularization procedures are currently performed using DES, it would be very useful to validate non-invasive tools for predicting the prognosis of patients with DES. Therefore, in this study, we investigated the association between the ABI and cardiovascular events among patients with a history of DES implantation. Our hypothesis was that ABI is a useful tool for predicting future cardiovascular events in this population.

Methods

Study Subjects

This retrospective study was performed at Seoul National University Boramae Medical Center (Seoul, Korea) between May 2008 and March 2012. A total of 345 patients who underwent PCI with DES were screened for the presence of PAD with ABI prior to hospital discharge. The review excluded cases involving failure or unsuccessful results for PCI \( (n = 7) \), a history of previous revascularization of lower limb and/or ischemic amputation of the extremities \( (n = 5) \), an ABI greater than 1.5 \( (n = 3) \) and a lack of clinical information required for the study analysis \( (n = 8) \). The remaining 322 patients were included in this study. Each medical record was reviewed for data regarding cardiovascular risk factors, including hypertension, diabetes mellitus, dyslipidemia, smoking, previous vascular events, clinical diagnosis on initial admission and medical treatment. Hypertension was defined as a blood pressure of \( \geq 140/90 \) mmHg and/or the use of antihypertensive medications. Diabetes mellitus was defined as a fasting glucose level of \( \geq 126 \) mg/dl and/or the use of oral hypoglycemic agents or insulin. The left ventricular ejection fraction was obtained on transthoracic echocardiography. Major laboratory findings were also assessed, including the hemoglobin, total cholesterol, triglyceride, high- and low-density lipoprotein cholesterol and C-reactive protein levels and estimated glomerular filtration rate. The study protocol was approved by the Institutional Review Board (IRB) of Seoul National University Boramae Medical Center (Seoul, Korea).

Procedures and Medications

PCI was performed according to the current guidelines\textsuperscript{10}. All study patients underwent DES implantation, followed by the administration of dual anti-platelet therapy with aspirin and clopidogrel. Medicines for secondary prevention, such as beta-blockers, renin-angiotensin system blockers and statins, were given to all patients after PCI in the absence of contraindications.

ABI Measurement

The ABI measurements were performed in each study patient during hospitalization for the index PCI procedure. The patients were examined in the supine position after more than five minutes of rest. The ABI was then measured using a volume-plethysmographic apparatus (VP-1000; Colin Co. Ltd., Komaki, Japan) in accordance with the manufacturer’s recommendations\textsuperscript{11}, with cuffs wrapped on both arms and ankles. A phonogram and pulse volume waveform, as well as blood pressure and heart rate, were recorded simultaneously. A third measurement was obtained if the first and second blood pressure values differed by more than 15 mmHg at any site. If the posterior tibial pulse could not be located, the measurement was obtained from the dorsalis pedis artery\textsuperscript{7}. The ABI of each leg was calculated by dividing the systolic blood pressure of the right and left ankles by the greater systolic blood pressure of the two arms. The lowest value of the left and right ABI was used for the study analysis. All measurements were obtained by a single operator who was blinded to the patient’s information. Patients with an ABI \(< 0.9 \) were considered to have PAD.

Clinical Follow-Up

After discharge, the patients were recommended to visit the cardiology department at one and three months, then every three months thereafter. Routine follow-up coronary angiography was performed at nine to 10 months after index PCI, which is mandatory in Korea based on the national registry of PCI. Coronary angiography was performed earlier in cases of unstable symptoms or proven ischemia. Data related to adverse clinical events, including death, non-fatal myocardial infarction, unstable angina requiring admission and coronary revascularization, were also collected. The primary study endpoint was the time from enrollment to composite clinical events, including cardiac death, non-fatal myocardial infarction and coronary revascularization. Unexplained sudden death was classified as cardiac death. Myocardial infarction was diagnosed based on the detection of elevated cardiac troponin levels together with the presence of acute chest pain and/or electrocardiographic changes or imaging evidence of new loss of viable myocardium.
Table 1. Baseline clinical characteristics according to the tertile of the ankle-brachial index

| Characteristic                              | Total (n = 322) | The highest tertile (n = 108) | The middle tertile (n = 107) | The lowest tertile (n = 107) | p value*
|---------------------------------------------|-----------------|-------------------------------|-------------------------------|-------------------------------|--------
| Ankle-brachial index                        | 1.04 ± 0.17     | 1.19 ± 0.04                   | 1.09 ± 0.02                   | 0.85 ± 0.18                   | <0.001
| Peripheral arterial disease (ankle-brachial index < 0.9), n (%) | 44 (13.7)       | 0                             | 0                             | 44 (41.1)                     | <0.001
| Age, years                                  | 66.1 ± 10.3     | 63.7 ± 8.8                    | 64.8 ± 10.5                   | 69.8 ± 10.7                   | <0.001
| Male sex, n (%)                             | 216 (67.1)      | 80 (74.1)                     | 66 (67.1)                     | 70 (65.4)                     | 0.140
| Body mass index, kg/m²                       | 24.7 ± 3.4      | 25.2 ± 3.2                    | 25.0 ± 3.4                    | 23.9 ± 3.4                    | 0.010
| Diabetes, n (%)                             | 128 (39.8)      | 34 (31.5)                     | 36 (33.6)                     | 58 (54.2)                     | 0.001
|   Life style modification, n (%)             | 8 (2.5)         | 1 (0.9)                       | 1 (0.9)                       | 6 (5.6)                       | 0.002
|   Oral hypoglycemic agent, n (%)             | 88 (27.3)       | 29 (26.9)                     | 22 (20.6)                     | 37 (34.6)                     | 0.066
|   Insulin therapy, n (%)                     | 17 (5.3)        | 4 (3.7)                       | 5 (4.7)                       | 8 (7.5)                       | 0.11
|   Oral hypoglycemic agent + insulin therapy, n (%) | 15 (4.7)  | 0                             | 8 (7.5)                       | 7 (6.5)                       | 0.027
| Hypertension, n (%)                          | 229 (71.1)      | 75 (69.4)                     | 71 (66.4)                     | 83 (77.6)                     | 0.174
| Previous stroke, n (%)                       | 35 (10.9)       | 12 (11.1)                     | 7 (6.5)                       | 16 (15.0)                     | 0.141
| Previous coronary artery disease, n (%)      | 45 (14.0)       | 9 (8.3)                       | 17 (15.9)                     | 19 (17.8)                     | 0.18
| Current smoking, n (%)                       | 89 (27.6)       | 22 (20.4)                     | 37 (34.6)                     | 30 (28.0)                     | 0.066
| Systolic blood pressure, mmHg                | 130 ± 21        | 126 ± 18                      | 131 ± 23                      | 133 ± 22                      | 0.027
| Diastolic blood pressure, mmHg               | 74.2 ± 11.1     | 73.3 ± 10.2                   | 76.1 ± 12.1                   | 73.3 ± 10.9                   | 0.10
| Heart rate, per minute                       | 68.0 ± 12.4     | 64.8 ± 10.2                   | 67.1 ± 12.6                   | 72.0 ± 13.1                   | <0.001
| Laboratory findings                          |                |                               |                               |                               |        
| Hemoglobin, g/dL                             | 12.9 ± 1.7      | 12.9 ± 1.7                    | 13.0 ± 1.6                    | 13.2 ± 1.6                    | 0.005
| Total cholesterol, mg/dL                     | 155 ± 41        | 154 ± 34                      | 165 ± 41                      | 146 ± 43                      | 0.006
| Triglyceride, mg/dL                          | 121 ± 68        | 124 ± 81                      | 116 ± 58                      | 125 ± 62                      | 0.614
| High-density lipoprotein cholesterol, mg/dL  | 41.4 ± 23.9     | 38.6 ± 9.0                    | 41.2 ± 14.0                   | 39.5 ± 11.9                   | 0.339
| Low-density lipoprotein cholesterol, mg/dL   | 98.1 ± 34.6     | 94.6 ± 31.3                   | 103.9 ± 36.4                  | 95.8 ± 35.7                   | 0.151
| Estimated glomerular filtration rate, mL/min/1.73 m² | 78.4 ± 15.4  | 83.9 ± 23.6                   | 80.7 ± 24.3                   | 70.6 ± 26.5                   | <0.001
| C-reactive protein, mg/dL                    | 1.50 ± 5.77     | 0.54 ± 0.95                   | 1.74 ± 8.52                   | 2.30 ± 5.41                   | 0.107
| Acute coronary syndrome at initial presentation, n (%) | 263 (81.7)  | 83 (76.9)                     | 88 (82.2)                     | 92 (86.6)                     | 0.220
| Three vessel disease, n (%)                  | 140 (43.5)      | 42 (38.9)                     | 37 (34.6)                     | 61 (57.0)                     | 0.002
| Left ventricular ejection fraction, %        | 62.6 ± 11.3     | 64.5 ± 9.4                    | 62.9 ± 11.1                   | 60.2 ± 13.0                   | 0.026
| Medication at discharge, n (%)               |                |                               |                               |                               |        
| Aspirin                                      | 322 (100)       | 108 (100)                     | 107 (100)                     | 107 (100)                     | –
| Clopidogrel                                   | 320 (99.4)      | 107 (99.1)                    | 107 (100)                     | 106 (99.1)                    | 0.606
| Beta-blocker                                  | 262 (81.4)      | 91 (84.3)                     | 86 (80.4)                     | 85 (79.4)                     | 0.629
| Angiotensin-converting-enzyme inhibitor      | 143 (44.4)      | 44 (40.7)                     | 46 (43.0)                     | 53 (49.5)                     | 0.404
| Angiotensin receptor blocker                 | 102 (31.7)      | 35 (32.4)                     | 30 (28.0)                     | 37 (34.6)                     | 0.578
| Statin                                       | 304 (94.4)      | 101 (93.5)                    | 105 (98.1)                    | 98 (91.6)                     | 0.101
| Calcium channel blocker                      | 143 (44.4)      | 47 (43.5)                     | 38 (35.5)                     | 58 (54.2)                     | 0.022

*significance based on the results of comparisons between the three groups classified according to the tertile of the ankle-brachial index.

or regional wall motion abnormalities. The revascularization procedures included PCI and coronary bypass surgery. Patients lost to follow-up for more than six months were contacted by telephone using a standardized questionnaire. The first event was considered to be the event for a given patient. When two or more events were recorded on the same day, the most serious event was considered to be the event in the following order: cardiac death, non-fatal myocardial infarction and coronary revascularization. The last clinical follow-up visit was performed in September 2012.

Statistical Analysis

The data are expressed as the mean ± standard deviation for continuous variables and percentages for categorical variables. Multiple logistic regression analyses were performed to identify independent predictors for the presence of PAD. The patients were
grouped according to the ABI tertile, and comparisons of the clinical characteristics and incidence of events in each group were performed using the Chi-square test of linear-by-linear associations. An analysis of variance (ANOVA) was used to compare continuous variables between the three groups according to the ABI tertile, and Cox proportional hazards analyses were performed to identify predictors of clinical events. Adjustments for age, sex, body mass index (BMI), history of diabetes and hypertension, smoking status, ACS, triple vessel disease, left ventricular ejection fraction and estimated glomerular filtration rate were made in the Cox model. A Kaplan-Meier survival analysis was used to compare the cumulative event rate according to the ABI tertile using the log-rank test, and a receiver operating characteristic (ROC) curve analysis was employed to assess the cut-off value for the ABI as a predictor of coronary events. \( P \) values of \( <0.05 \) were considered to be significant. All statistical analyses were performed using the SPSS 18.0 software program (SPSS, Inc., Chicago, Illinois, USA).

**Results**

**Clinical Characteristics**

The baseline clinical characteristics of study patients are presented in Table 1. The mean age was 66.1 ± 10.3 years, and 216 (67.1%) of the participants were men. Forty-four patients (13.7%) had PAD, as evaluated according to the ABI (ABI < 0.9). Among these patients, 10 (22.7%) had claudication, 17 (38.6%) underwent angioplasty and one underwent bypass surgery during the study period. The proportion of patients with diabetes was 39.8%, that with hypertension was 71.1%, that with a history of stroke was 10.9% and that with CAD was 14.0%. Two hundred and sixty-three patients (81.7%) suffered from ACS at the time of initial hospital admission, and 140 (43.5%) were diagnosed with three-vessel disease. The mean ABI for the entire study population was 1.04 ± 0.17. Compared to the patients with higher ABI values, those with lower ABI values were older and had lower body mass indices. Atherosclerotic risk factors, including the presence of diabetes, high systolic blood pressure, an elevated heart rate, renal dysfunction, triple vessel disease and left ventricular dysfunction, were more common in the patients with lower ABI values. The distribution of the ABI values is shown in Fig. 1.

An older age, low BMI, diabetes, history of smoking and renal insufficiency were found to be independent predictors for the presence of (ABI < 0.9) in men. In contrast, only renal insufficiency was identified as an independent predictor for PAD in women (Supplementary Table 1). An analysis stratified according to the presence/absence of diabetes was also performed, the results of which showed a low BMI and renal insufficiency to be independent predictors of PAD among the patients with diabetes, whereas a history of smoking and renal insufficiency were found to be independent predictors of PAD among the patients without diabetes (Supplementary Table 2).

![Distribution of the ABI values among the study patients.](image1)

Fig. 1. Distribution of the ABI values among the study patients. ABI, ankle-brachial index.

![Cardiovascular events according to the ABI tertile.](image2)

Fig. 2. Cardiovascular events according to the ABI tertile. ABI, ankle-brachial index; CD, cardiac death; MI, myocardial infarction.
The present study demonstrated the prognostic significance of ABI with respect to coronary events after DES implantation. Despite advancements in treatment techniques with DES, a lower ABI was found to be associated with worse outcomes after PCI. To the best of our knowledge, this is the first study to investigate the effects of ABI on clinical outcomes in patients undergoing DES implantation. Based on our results, measuring the ABI would be helpful for risk stratification among these patients.

Our study findings are consistent with those of previous studies showing an association between the presence of PAD and clinical outcomes among patients with CAD. For example, Eagle et al. reported that PAD is a strong independent predictor of long-term mortality in patients with stable CAD. In that study, all patients had stable CAD, and 2,296 patients with PAD had a 25% greater likelihood of mortality compared to the 13,953 patients without PAD during more than 10 years of follow-up observation. The prognostic significance of PAD has also been demonstrated in patients with ACS. The Global Registry of Acute Coronary Events (GRACE) registry...
including 41,108 patients with ACS showed that the patients with PAD experienced more cardiovascular events than those without prior PAD during their hospital stay\(^{16}\) and six months of follow-up\(^{17}\). Similarly, Morillas et al. analyzed 1,054 patients hospitalized for ACS and reported that the patients with clinical PAD had higher rates of myocardial infarction, angina and heart failure than the subjects with subclinical PAD or those without PAD during the one year of follow-up\(^{9}\). Furthermore, another study demonstrated that patients presenting with myocardial infarction with a prior history of PAD are more likely to experience coronary events, including death\(^{15}\). The prognostic value of PAD has also been demonstrated in patients treated with PCI\(^{18, 19}\). Chiu et al. demonstrated that a history of PAD is associated with a two- to three-fold increase in mortality at one year after coronary stent implantation\(^{18}\), and Nikolsky and colleagues showed symptomatic PAD to be an independent predictor of one-year mortality in patients treated with PCI (odds ratio 1.71, 95% confidence interval 1.42 to 2.07)\(^{19}\). However, in contrast to the present study, bare-metal stents were used in both of those studies\(^{18, 19}\). Meanwhile, Ribera et al. showed that an abnormal ABI value inde-

---

**Fig. 3.** Kaplan-Meier curve showing the event rate according to the ABI tertile.

ABI, ankle-brachial index; CD, cardiac death; MI, myocardial infarction, Revasc., revascularization.

---

**Fig. 4.** ROC curve showing the best cut-off value of ABI for predicting cardiovascular events.

ROC, receiver operating characteristics; ABI, ankle-brachial index; AUC, area under the curve; CI, confidence interval.
The presence of concomitant PAD in patients with CAD is well described. For example, the diagnosis of PAD using non-invasive evaluations has been reported in more than 20% of patients undergoing coronary angiography and more than 30% of patients with severe CAD \(^3\). In addition, Nikolsky et al. noted that approximately 20% of patients undergoing PCI have symptomatic PAD \(^{19}\), and, in a multinational registry of ACS, 9.7% of patients had a prior history of PAD \(^{16}\). Furthermore, Morillas and colleagues showed that clinical PAD is present in 14.2% of patients with ACS \(^9\). In line with these findings, PAD was diagnosed based on the ABI in 13.7% of patients in this study.

The most widely used parameter for diagnosing PAD is the ABI. Hemodynamically significant arterial stenosis results in a resting ABI of \(\geq 0.9\), and this value is most often used to hemodynamically define PAD \(^4\). Many studies have also shown an ABI \(< 0.9\) to be an independent predictor of cardiovascular morbidity and mortality in various populations \(^{21, 22}\). In the present study, there was a significant difference in the rate of cardiovascular events between the groups with the highest and middle tertiles of ABI. Considering that all patients in the middle tertile had an ABI of \(\geq 0.9\), individuals with a borderline ABI value may also have poorer outcomes. Additionally, an ABI cut-off value of 1.057 was identified to be the most accurate value for predicting cardiovascular events after independently predicted death from any cause and cardiovascular death after one year of follow-up in a cohort of 1,437 consecutive patients receiving DES. However, the ABI value was not found to be associated with non-fatal events, such as stroke, ACS or coronary revascularization, in that study \(^{20}\). In a recent investigation, Cuneo et al. also showed that the presence of PAD is an independent predictor of one-year mortality among 5,296 patients treated with DES stenting \(^{21}\). However, the definition of PAD in that study was not specified \(^{21}\). Therefore, the present study is the first to demonstrate the significant prognostic value of the ABI for predicting future coronary events among patients undergoing DES implantation. We also analyzed whether the ABI has prognostic value with respect to each type of clinical event. However, the ABI values of our patients did not significantly predict the various clinical events (data not shown). The low number of each type of event may account for the inconclusive results.

The presence of concomitant PAD in patients with CAD is well described. For example, the diagnosis of PAD using non-invasive evaluations has been reported in more than 20% of patients undergoing coronary angiography and more than 30% of patients with severe CAD \(^3\). In addition, Nikolsky et al. noted that approximately 20% of patients undergoing PCI have symptomatic PAD \(^{19}\), and, in a multinational registry of ACS, 9.7% of patients had a prior history of PAD \(^{16}\). Furthermore, Morillas and colleagues showed that clinical PAD is present in 14.2% of patients with ACS \(^9\). In line with these findings, PAD was diagnosed based on the ABI in 13.7% of patients in this study.

The most widely used parameter for diagnosing PAD is the ABI. Hemodynamically significant arterial stenosis results in a resting ABI of \(\geq 0.9\), and this value is most often used to hemodynamically define PAD \(^4\). Many studies have also shown an ABI \(< 0.9\) to be an independent predictor of cardiovascular morbidity and mortality in various populations \(^{21, 22}\). In the present study, there was a significant difference in the rate of cardiovascular events between the groups with the highest and middle tertiles of ABI. Considering that all patients in the middle tertile had an ABI of \(\geq 0.9\), individuals with a borderline ABI value may also have poorer outcomes. Additionally, an ABI cut-off value of 1.057 was identified to be the most accurate value for predicting cardiovascular events after
In the present study, we analyzed a limited number of patients, and the follow-up duration was relatively short. Therefore, it is possible that certain differences in study variables did not reach statistical significance. Additionally, for the same reason, the impact of ABI on hard outcomes (cardiac death and non-fatal myocardial infarction) could not be analyzed. Second, ABI assessments are not routine among patients with CAD at our hospital, but rather dependent on the judgment of the attending physicians. Therefore, not all patients with DES implantation had undergone ABI measurement. Third, our results were obtained from patients with a history of DES implantation and thus cannot be generalized to other populations. Fourth, not all confounders were controlled for in the multivariable analysis.

In conclusion, a lower ABI is associated with poorer cardiovascular outcomes in patients with a history of DES implantation. As a simple and non-invasive parameter, ABI provides a benefit for predicting future cardiovascular events in this population. Therefore, the ABI can be used to identify high-risk patients who should be considered for more aggressive preventive management. Nevertheless, further prospective studies with a larger sample size are needed to confirm these findings.

Acknowledgement

The authors appreciate the help of Hee Jun Kim, So Youn Jung, Eun A Jang, Hye Yum Kim, Ji Sun Na and Bo Ram Park in collecting the data.

Funding Sources

This research received no specific grants from any funding agencies in the public, commercial or not-for-profit sectors.

Disclosures

The authors declare that there are no conflicts of interest associated with this manuscript.

References

2) Criqui MH, Denenberg JO, Langer RD, Fronck A: The epidemiology of peripheral arterial disease: importance of identifying the population at risk. Vasc Med, 1997; 2: 221-226
4) Norgren L, Hiatt WR, Dormandy JA, Nehler MR, Harris KA, Fowkes FG, Bell K, Caporusso J, Durand-Zaleski I,


15) Spencer FA, Lessard D, Doubeni C, Yarzebski J, Gore JM, Goldberg RJ: Treatment practices and outcomes of patients with established peripheral arterial disease hospitalized with acute myocardial infarction in a community setting. Am Heart J, 2007; 153: 140-146


23) Diehm C, Lange S, Darius H, Pittrow D, von Stritzky B,
Supplementary Table 1. Independent predictors of the presence of peripheral artery disease (ankle-brachial index < 0.9) according to gender

<table>
<thead>
<tr>
<th>Variable</th>
<th>Men</th>
<th></th>
<th></th>
<th></th>
<th>Women</th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>OR (95% CI)</td>
<td>p value</td>
<td>OR</td>
<td>p value</td>
<td>OR (95% CI)</td>
<td>p value</td>
<td>OR</td>
<td>p value</td>
</tr>
<tr>
<td>Age ≥ 65 years</td>
<td>10.98 (3.06-39.41)</td>
<td>&lt;0.001</td>
<td>1.03</td>
<td>0.970</td>
<td>1.03 (0.17-6.20)</td>
<td>0.970</td>
<td></td>
<td></td>
</tr>
<tr>
<td>BMI ≥ 25 kg/m²</td>
<td>0.17 (0.52-0.60)</td>
<td>0.006</td>
<td>0.62</td>
<td>0.520</td>
<td>0.62 (0.15-2.60)</td>
<td>0.520</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Diabetes</td>
<td>6.58 (2.33-18.57)</td>
<td>&lt;0.001</td>
<td>1.40</td>
<td>0.636</td>
<td>1.40 (0.34-5.77)</td>
<td>0.636</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hypertension</td>
<td>0.51 (0.17-1.54)</td>
<td>0.237</td>
<td>~</td>
<td>~</td>
<td>~</td>
<td>~</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Smoking</td>
<td>2.47 (1.18-5.15)</td>
<td>&lt;0.001</td>
<td>0.81</td>
<td>0.757</td>
<td>0.81 (0.23-2.91)</td>
<td>0.757</td>
<td></td>
<td></td>
</tr>
<tr>
<td>eGFR &lt; 60 mL/min/1.73 m²</td>
<td>4.31 (1.60-11.59)</td>
<td>0.004</td>
<td>6.60</td>
<td>0.008</td>
<td>6.60 (1.63-26.67)</td>
<td>0.008</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

OR, odds ratio; CI, confidence interval; BMI, body mass index; eGFR, estimated glomerular filtration rate.

Supplementary Table 2. Independent predictors of the presence of peripheral artery disease (ankle-brachial index < 0.9) according to diabetes

<table>
<thead>
<tr>
<th>Variable</th>
<th>Patients with diabetes</th>
<th></th>
<th></th>
<th>Patients without diabetes</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>OR (95% CI)</td>
<td>p value</td>
<td>OR</td>
<td>p value</td>
<td>OR</td>
<td>p value</td>
</tr>
<tr>
<td>Age ≥ 65 years</td>
<td>3.35 (1.08-10.39)</td>
<td>0.035</td>
<td>~</td>
<td>0.996</td>
<td>2.39</td>
<td>0.341</td>
</tr>
<tr>
<td>Male sex</td>
<td>0.49 (0.15-1.59)</td>
<td>0.238</td>
<td>2.39</td>
<td>0.341</td>
<td>2.39</td>
<td>0.341</td>
</tr>
<tr>
<td>BMI ≥ 25 kg/m²</td>
<td>0.35 (0.12-0.97)</td>
<td>0.044</td>
<td>0.16</td>
<td>0.097</td>
<td>0.16</td>
<td>0.097</td>
</tr>
<tr>
<td>Hypertension</td>
<td>0.34 (0.98-1.19)</td>
<td>0.092</td>
<td>2.39</td>
<td>0.265</td>
<td>2.39</td>
<td>0.265</td>
</tr>
<tr>
<td>Smoking</td>
<td>1.23 (0.62-2.43)</td>
<td>0.544</td>
<td>3.55</td>
<td>0.028</td>
<td>3.55</td>
<td>0.028</td>
</tr>
<tr>
<td>eGFR &lt; 60 mL/min/1.73 m²</td>
<td>4.07 (1.50-11.08)</td>
<td>0.006</td>
<td>6.21</td>
<td>0.010</td>
<td>6.21</td>
<td>0.010</td>
</tr>
</tbody>
</table>

OR, odds ratio; CI, confidence interval; BMI, body mass index; eGFR, estimated glomerular filtration rate.