

The Disparity Between The Prevalence of Peripheral Arterial Disease and Geographical Distribution of Endovascular Trials in the Femoropopliteal Region

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Objective

The global burden of peripheral arterial disease (PAD) is increasing rapidly. Different genetic pools, risk factor profiles, and socioeconomic factors between countries are changing the worldwide distribution of PAD. Endovascular therapy for treating PAD continues to evolve, with the invention of new devices allowing minimally invasive surgery for complex lesions that would have previously required bypass operations.^{1,2} Geographical distribution of trials for endovascular therapy need to match the change in global PAD prevalence to ensure that treatments are appropriate for the populations that requires them. The aim of this study was to compare the geographical distribution of endovascular studies in the femoropopliteal region with the prevalence of PAD.

Methods

A systematic review of the literature was conducted from January 1995 to July 2015. Medline, EMBASE, and the Cochrane CENTRAL registry were searched for randomised controlled trials of endovascular interventions involving drug-coated balloons, drug-eluting stents, bare nitinol stents, and heparin-bonded covered stents in the femoropopliteal region. Randomised controlled trials were extracted from the search. The location of study centres was extracted and compared to recently published geographical prevalence data.³

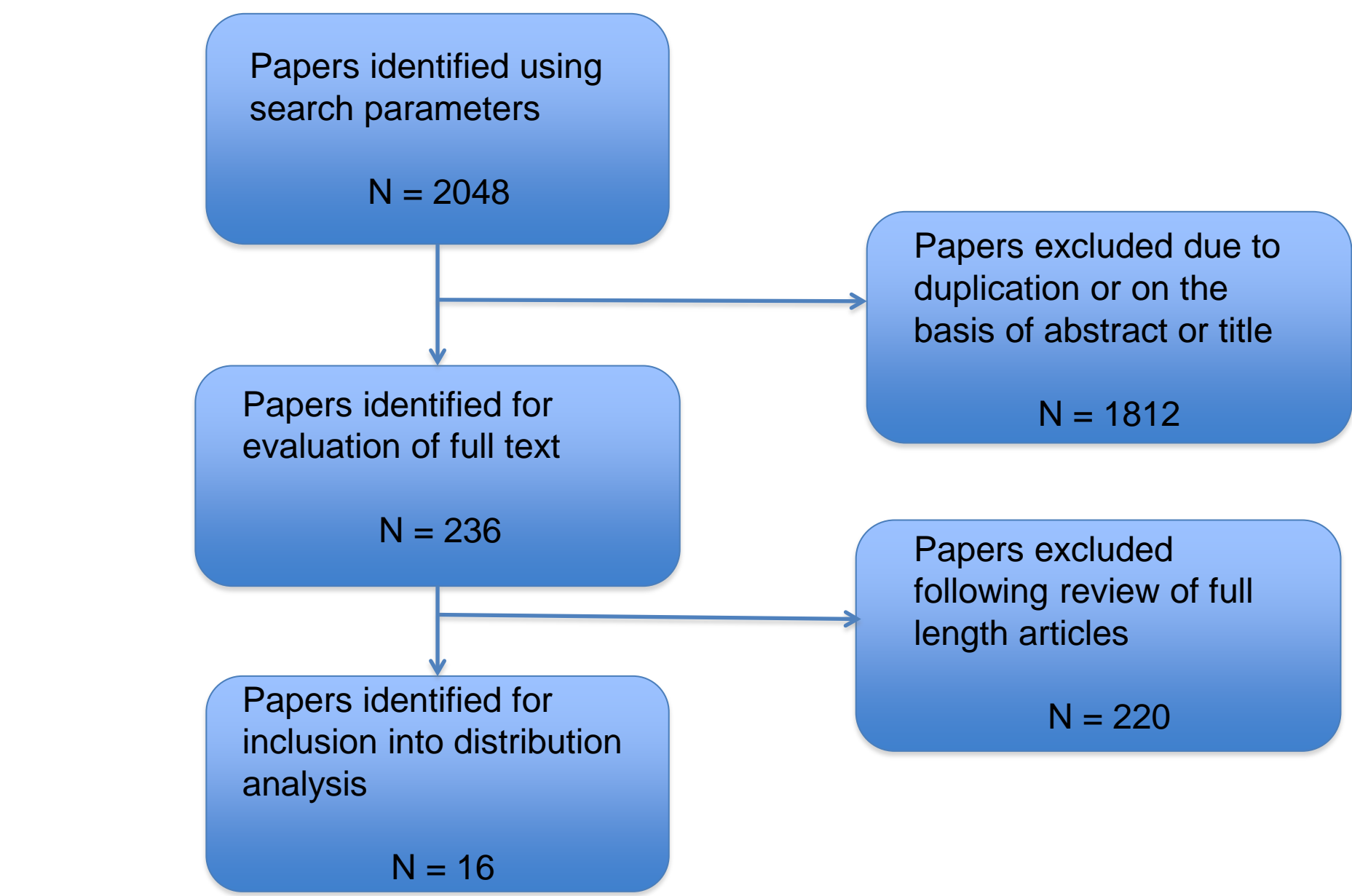


Figure 1. PRISMA diagram for the systematic review of endovascular interventions in the femoropopliteal region

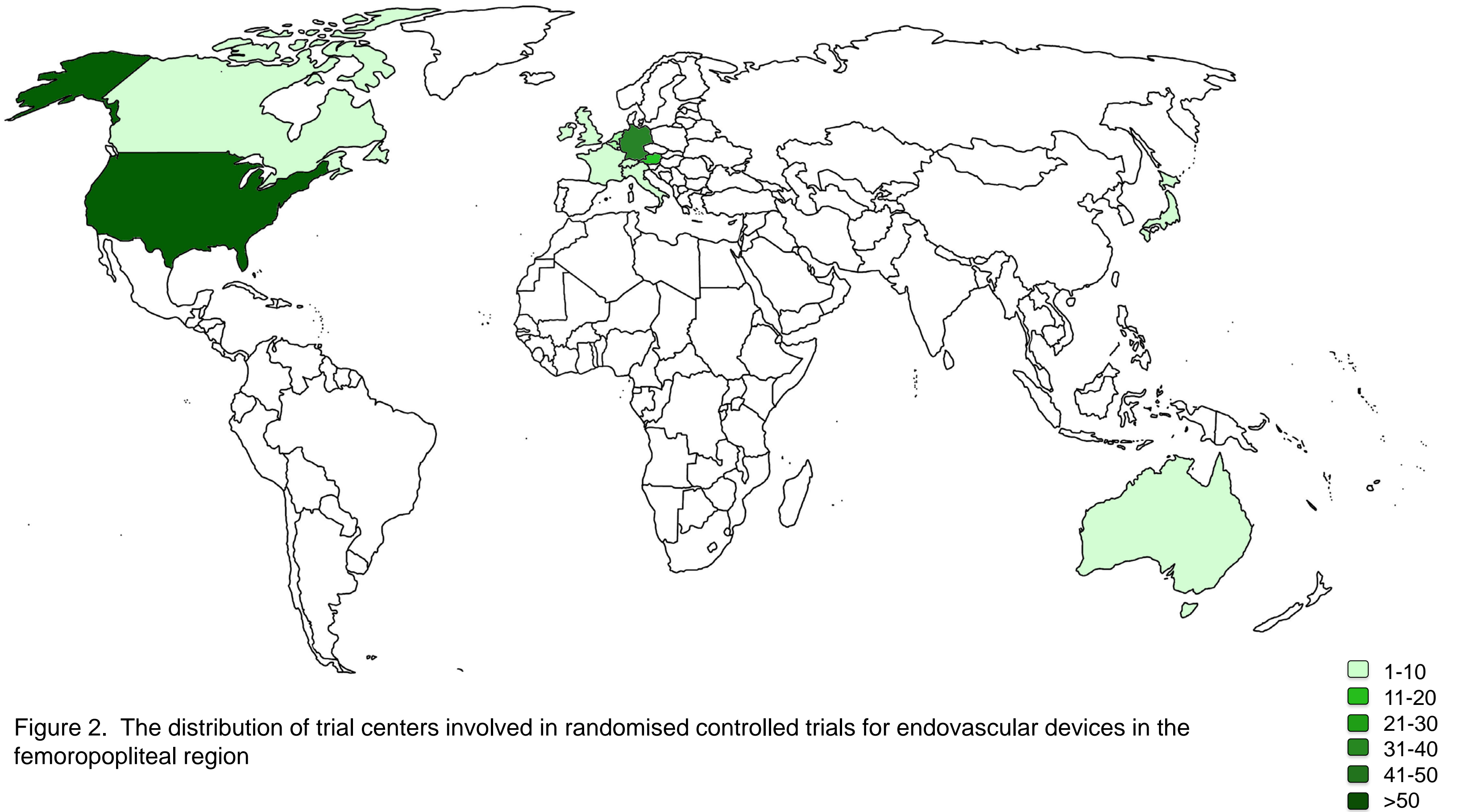


Figure 2. The distribution of trial centers involved in randomised controlled trials for endovascular devices in the femoropopliteal region

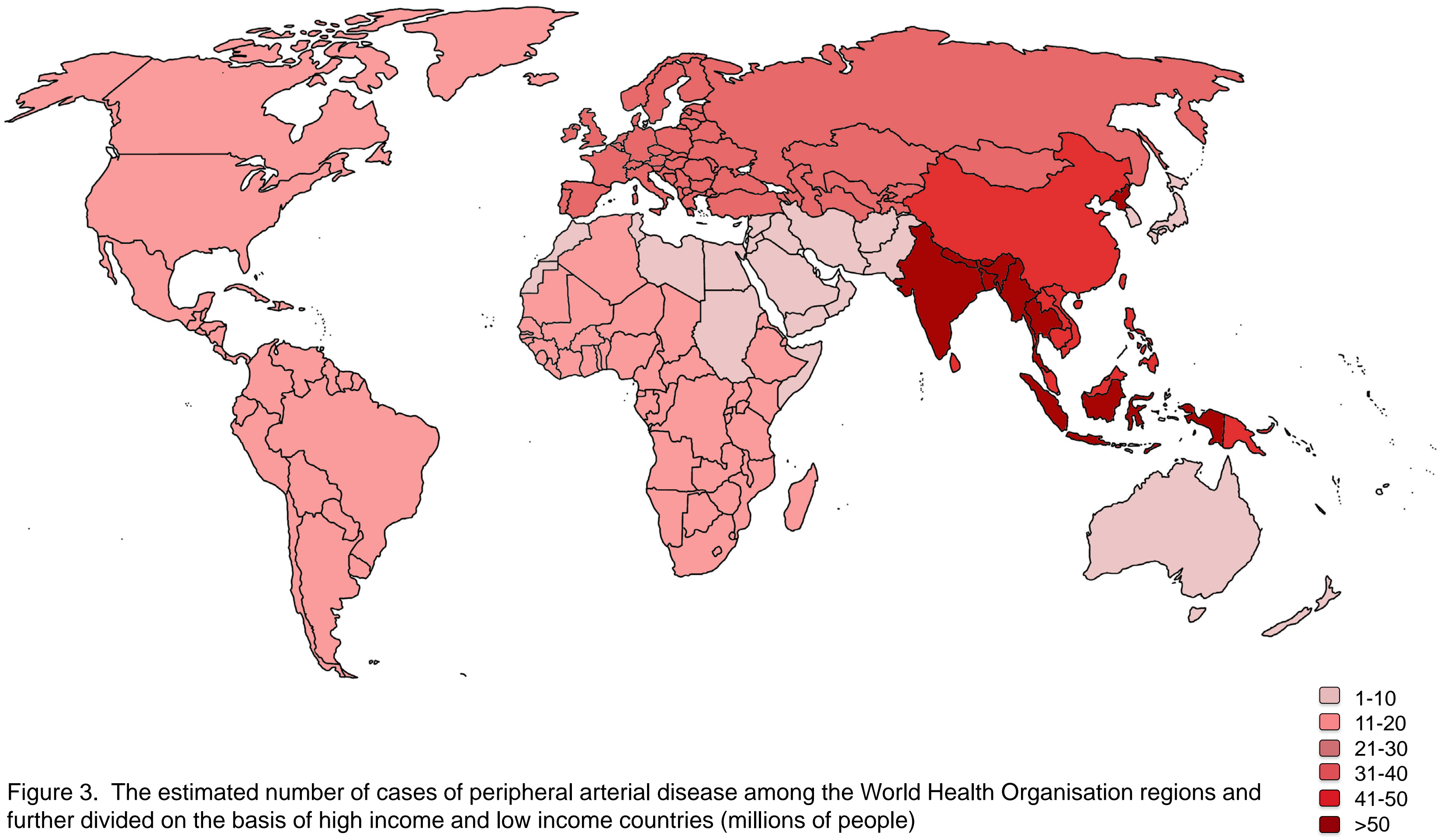


Figure 3. The estimated number of cases of peripheral arterial disease among the World Health Organisation regions and further divided on the basis of high income and low income countries (millions of people)

Results

Full text reviews were conducted for 236 citations and 16 randomised controlled trials were identified. Within these 16 randomised controlled trials there were 240 study centres located in 12 countries. All 240 study centres were located in high income countries. Their global distribution is illustrated in Figure 2. An estimate of the worldwide distribution of PAD is shown in Figure 3. Based on recent estimates of the worldwide prevalence of PAD there are 255 000 people suffering from PAD per study centre in high income countries compared with 140 million people with PAD and zero study centres in low/middle income countries. For interventions evaluating endovascular surgery in the femoropopliteal region 67.9% of the worlds population with PAD is not represented in the existing literature.

Conclusions

Trials investigating endovascular interventions in the femoropopliteal region are unequally distributed worldwide and do not reflect the evolving prevalence of PAD. As low income countries and the developing world see a shift towards a more western lifestyle, the need for advanced treatment of peripheral arterial disease will grow. With 67.9% of the world burden of PAD not represented by current studies of endovascular technology, it is difficult to extrapolate current study results to the global population. Further studies in a broader geographical distribution are needed before study results can be confidently applied throughout the world.

References

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