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Hypertension and peripheral artery disease: a similar problem?

For many, hypertension and peripheral artery disease (PAD) may look like very different entities, much removed from each other; however, they are much closer to each other than might be expected. We shall expand on these similarities below.

1. Hypertension and PAD often present together

Many epidemiological data have repeatedly shown that the prevalence of PAD is increased in patients with hypertension (HT); in the Framingham study there was a doubling of such prevalence, in men and even more so in women. More recently in the SHEP study[1] it was shown that 2% to 5% of hypertensives at presentation also experience signs or symptoms of PAD such as intermittent claudication; the prevalence increases with age. Conversely, in the PARTNERS study,[2] 35% to 55% of patients with PAD at presentation also had elevated blood pressure (BP). Such findings already suggest that there could be a link between both entities. From the clinical point of view, indeed many more links will become apparent.

2. Both HT and PAD, are pressure-related

At first sight, this may look controversial, because the direction of pressure causing harm is opposite: high in HT, low in PAD. However, in reality, one needs to understand that the major cause of clinical events in both conditions is the level of pressure. This is well demonstrated in HT, but less well-known in PAD. Measuring ankle BP and expressing it as a percentage of brachial artery pressure (ABI, ankle-brachial-index) is one of the best diagnostic tools for PAD. As the method is easy, cheap, and totally noninvasive, measurement of ABI is recommended according to the recent TASCII guidelines[3] in a broad range of subjects such as patients with exertional symptoms, all subjects over 50 years old presenting with at least one cardiovascular risk factor (like diabetes and HT) and all subjects over 70 years old, irrespective of their risk factor status. Thus, from the point of view of diagnosis-making, the link to pressure is clear in both conditions. This also means that great care needs to be taken in the technique of BP measurement, which leads to discussion of, eg, the value of office versus ambulatory pressure.[4]

3. Both carry an increased risk

This point has been repeatedly proven in HT, where the risk of events in all territories (cerebral, coronary, or elsewhere) is linked to the amount of BP increase. Less known is the fact that the high risk of PAD is closely related to the ankle pressure index (ABI); the lower the ABI, the higher total cardiovascular risk.[5] This finding highlights the surprising high risk of PAD; the recently published REACH registry[6] has clearly shown that the total risk of PAD patients (including hospitalization) is at least as high, if not higher, than the risk of coronary artery or cerebrovascular disease. Therefore, PAD often is being called a "coronary-like" condition. Although PAD can cause symptoms in the lower limbs, greatly decreasing quality of life, still its major risk is to cause life-threatening accidents in the coronary or cerebral territory. This risk is quite well known in HT, but is largely ignored in PAD patients; this message should be highlighted to patients and the population at large. Furthermore, in both HT and PAD it has been demonstrated that the risk is strikingly increased, irrespective of whether the patients are symptomatic or not![3]

4. Both are underdiagnosed and undertreated

The often-used "rule of 50%" in HT has been known for years; it means that, from the total population of hypertensives, 50% are unknown, of those known only 50% are treated, and of those treated only 50% have achieved the target BP. Most likely, this figure has improved in recent years, but the vast majority of hypertensive patients are still not at the required pressure level yet. This means both a diagnostic and a treatment failure.

In PAD, the situation is probably even worse. The PARTNERS study[2] has demonstrated a remarkable lack of awareness of patients, but also of their physicians, toward the disease. The issue is further complicated by the fact that the typical symptom of PAD in the lower limbs—intermittent claudication—is occurring far less that regularly mentioned in traditional teaching.[7] Many more patients are asymptomatic, or experience symptoms that are completely atypical, such as muscle aching, pain suggestive of degenerative lesions at hip or knee joints, etc.

Obviously, underdiagnosing leads to undertreating. In HT the problem has been known for years but despite the many campaigns there has not been much improvement. In most countries in the world, target BP as clearly indicated in the guidelines[8] is not obtained in at least 50% of the patients. The recent EuroAspire studies conducted under the auspices of the European Society of Cardiology indicated that there is no favorable trend in this respect, even in patients who had already experienced a coronary event in the past! For PAD it is probably is at least as bad. Less than 46% of PAD patients get barely one risk factor controlled, and less that 25% get full risk control! Only a small proportion receive any antiplatelet therapy! Obviously, one should be even more concerned in cases when HT and PAD come, together as often happens (see above) which leads to very high risk. Strict advice for BP and risk factor correction should be instituted in such cases, with a very close follow-up.[9]

Conclusions

There are striking similarities between hypertension and peripheral artery disease. Both are pressure-related, underdiagnosed, and as a consequence, undertreated. Yet, both carry a strongly increased risk. Campaigns should be organized to address this problem, which can cause devastating complications. Major attention should be given to providing clear and practical information, not only to patients and their families, but also to the population at large. Teaching at national and international meetings should increasingly deal with these problems, which concern a large part of the population and absorb a substantial part of the health budget.

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References : 1. Newman AB et al. *J Am Geriatr Soc*. 1997;45:1472-1478. **2.** Partners study. *JAMA*. 2001:286:317-324. **3.** Norgren L, Hiatt W. *Int Angiology*. 2007:26:81-157. **4.** Clement DL et al. *N Engl J Med*. 2003:348:2407-2415. **5.** Dormandy JA, Creager MA. *Cerebrovasc Dis*. 1999;9(Suppl 1):1–128. **6.** Steg PG et al. *JAMA*. 2007;297:1197-1206. **7.** Diehm C et al. *Atherosclerosis*. 2004;172:95–105. **8.** 2007 Guidelines for the management of Hypertension: *J Hypertens*. 2007;25:1105-1187. **9.** De Buyzere M, Clement DL. *Prog Cardiovasc Dis*: 2008;50:238-263.