Hello, and welcome to the December 2019 edition of Vascular Disease Management. I have chosen to comment on the article by Dr Nugroho and colleagues, “Effect of Home-Based Exercise Training on Plasma Vascular Endothelial Growth Factor (VEGF) and Ankle-Brachial Index in Patients With Mild Peripheral Artery Disease: a Pilot Study.”

The authors report that a total of only 19 relatively young patients with mild peripheral arterial disease (PAD) were enrolled in a pilot study lasting 8 weeks. During the study, extensive home-based exercise therapy was administered, and follow-up VEGF levels were assessed. There was a significant increase in serum VEGF after only 8 weeks of exercise therapy.

During my career as a peripheral vascular interventionist, I have been amazed by the profound discordance in the correlation between angiographic severity of PAD and symptomatic status. Some patients with severe extensive anatomic obstructive disease have no or minimal symptoms, while others with far less obstruction are profoundly symptomatic and possibly even at risk of limb loss. Could this discordance be related to previously developed collateral vessels and prior production of VEGF? The results of exogenous administration of VEGF have been studied previously as a means to enhance blood flow in patients with critical limb ischemia (CLI), and clinical results have been mixed and non-definitive.

I am intrigued by the results of this small pilot study. If the results of this very small study, which was conducted over a short timeframe, are confirmed by larger, controlled studies conducted over longer time periods, there could be important theoretical ramifications. If PAD could be diagnosed at earlier stages and at a younger age, perhaps intensive exercise therapy might enhance VEGF production in patients who are more capable of responding to that stimulus with more effective angiogenesis than older patients with CLI. Is it possible that the symptomatic presentation may be related to whether there has been prior successful, physiologically mediated angiogenesis at an earlier time?

If larger studies confirm the results of this pilot study, more aggressive screening of patients to detect PAD in its earliest stages might be indicated. Perhaps more aggressive medical and exercise therapy earlier in the disease process could help to limit the progression of symptoms and possibly the development of CLI. Could exercise-based resultant angiogenesis mitigate atherosclerotic-based ischemia in other vascular territories? The best treatment option in all disease processes is disease prevention, and the next best option is early detection where therapy is effective and can be administered with lower risk. The worst option is waiting to treat only the most advanced disease where therapy is more complicated, expensive, and associated with far greater risk.

If we are to improve outcomes, we must focus on interrupting the disease process at its earliest stage. As physicians, disease prevention clearly must be our goal.