Nails can help detect arterial disease in legs

When insufficient blood supply is delivered to legs is called peripheral artery disease (PAD), which has several stages. Initially it can be asymptomatic but can evolve into gangrene in severe cases. It frequently manifests in the elderly, and thus, may be associated to other diseases also frequent in this age group such as high blood pressure and diabetes.

The legs symptoms, when present, varies from cramps during motion that disappear while in rest, numbness, weakness, changes in skin color, ulcers and even pain during rest which is a severe form that can evolve to gangrene. It is important to acknowledge that in advanced stages the quality of life is severely affected, so, prompt diagnosis and treatment are highly recommended.

It can be diagnosed by non-invasive methods such as an ultrasound (Doppler) or by the ankle-brachial index (ABI) technique that requires a baumanometer to calculate it.

On the other hand, onychodystrophy, defined as changes or malformation of the nail can have an infectious or an inflammatory origin, and although common in the open population, no data specify its frequency as a group, only in particular diseases such as fungal infection (onychomycosis).

We designed a study were we evaluated adult asymptomatic patients measuring ABI and evaluating all toenails for onychodystrophy in thickness, color or consistency, which are common but not exclusive findings of onychomycosis.

Of the 102 self-reported healthy adults, 66% were female and 34% male. The average age was 42 years old, within a range of 18-77 years. Sixty seven participants presented an abnormal ABI measurement with no gender difference, and of these, 39 had nail alterations.

Of those with altered nails only half had fungal infection and the rest were only classified as dystrophic nails. So we found out that the association between asymptomatic PAD and onychomycosis was present in 20% while 18% were associated to onychodystrophy without fungal infection.

After the statistical analysis was performed with chi-square test, we proved a statistically significant relation between onychodystrophy and PAD. So, this study suggests that asymptomatic PAD can be detected at an early stage and age in both male and female patients, allowing them to adopt adequate measures to reduce or stop progression of this disease.
Based on the results obtained, we propose that a simple way to detect patients with possible asymptomatic PAD is to measurethe ABI in those who present onychodystrophy, which may or not, be secondary to fungal infection. But, as nails are easily evaluated, it may be used as a marker.

Moreno-Coutiño Gabriela
Mycology Section, Hospital General "Dr. Manuel Gea González", Tlalpan, México

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