

말초혈관질환의 진단: 2016 American Heart Association/ American College of Cardiology 및 2017 European Society of Cardiology 가이드라인을 중심으로

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Diagnosis of Peripheral Artery Disease: Focus on the 2016 American Heart Association/American College of Cardiology and 2017 European Society of Cardiology Guidelines

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Abstract

Peripheral artery disease (PAD) is the most frequent cause of reduced perfusion in peripheral arteries. Patients with PAD often have manifestations of atherosclerosis of the lower limb, although both symptomatic and asymptomatic disease is common. The clinical signs of PAD can differ in diabetic and non-diabetic patients. Diabetic patients are at high risk for PAD characterized by symptoms of intermittent claudication or critical limb ischemia. However, the majority of PAD patients are clinically asymptomatic. In addition to history taking, physical examinations including inspection of the skin, palpation of leg and foot pulses, and determination of the ankle-brachial index (ABI) are considered for diagnosis of PAD. The ABI measurement is the easiest and most common investigative technique for PAD. For hemodynamic assessment, additional diagnostic modalities could be considered.

Keywords: Ankle brachial index, Diabetes mellitus, Peripheral arterial disease

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Received: Feb. 7, 2019; Accepted: Feb. 8, 2019

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서론

말초혈관질환의 고위험군은 병력 청취와 증상 문진 및 진찰을 통해 말초혈관질환이 있는지 평가해야 한다.

말초혈관질환의 고위험군이란 다음의 경우를 말한다. 1) 나이 65세 이상인 경우, 2) 나이가 50~64세이면서 죽상경화증의 위험인자(예: 당뇨병, 흡연, 이상지질혈증, 고혈압)를 갖고 있거나 혹은 말초혈관질환의 가족력이 있는 경우, 3) 나이가 50세 미만이면서 당뇨병이 있고 죽상경화증의 위험인자를 한 개 이상 갖고 있는 경우, 4) 다른 혈관질환(관상동맥, 경동맥, subclavian, 신장, mesenteric 동맥 협착증 혹은 복부대동맥류)이 있음을 이미 알고 있는 경우. 임상병력 청취상 전형적인 파행(claudication), 관절과 연관 없는 움직임 때의 사지 증상(전형적인 파행 증상은 아님), 보행기능 저하, 휴식기 허혈 통증 등이 있으면 말초혈관질환을 의심해 볼 수 있다[1].

말초혈관질환의 증상과 증후는 매우 다양하다. 말초혈관질환의 전형적인 파행이나 증후의 사지허혈과 같은 증상을 나타내기도 하지만[2-7], 말초혈관질환을 진단받은 환자들의 상당수는 전형적인 파행이 없거나 사지허혈과 연관된 증상이 아닌 비전형적인 사지 증상 혹은 무증상인 경우가 많다[2,3].

말초혈관의 진찰은 맥박 촉진, 대퇴골 잡음 청진, 다리와 발을 시진하는 것으로 이루어진다. 맥박 촉진시 비정상적이거나 맥박이 잘 만져지지 않을 경우, 청진시 혈관 잡음이 들릴 경우, 시진시 사지의 상처가 잘 아물지 않은 것이 관찰되거나 하지의 괴사 등이 보이면 말초혈관질환을 의심해야 한다[6,8,9].

위와 같은 병력 청취, 증상과 증후 및 진찰을 통해 말초혈관질환이 의심된다면 이를 확진하기 위한 검사들을 시행할 필요가 있다. 본론에서 말초혈관질환 확진을 위한 검사들에 대해서 논하고자 한다. 최근 2016년 American Heart Association (AHA) and American College of Cardiology (ACC) 가이드라인[10]과 2017년 European Society of Cardiology (ESC) and European Society of Vascular

Surgery (ESVS) 가이드라인[11]을 참고로 살펴보고자 한다. 말초혈관질환에서 당뇨병 환자와 비당뇨병 환자의 차이는 있으나 초기 진단적 접근은 크게 다르지는 않아 본론에서는 일반적인 말초혈관질환의 접근법으로 언급하고자 한다.

본론

1. 말초혈관질환의 진단

병력 청취, 증상, 진찰 소견 등을 통해서 말초혈관이 의심된다면 확진을 하기 위한 검사가 필요하다.

1) 휴식기 발목-위팔지수(resting ankle-brachial index)

말초혈관질환 진단을 위해서 휴식기 발목-위팔지수(ankle-brachial index, ABI)를 가장 먼저 실시할 것을 권고한다[12-19]. 매우 간단하고 비침습적인 진단 방법이다. 누운 자세에서 도플러를 이용하여 양쪽 위팔(brachial arteries)과 양쪽 발목(dorsalis pedis와 posterior tibial arteries)에서 혈압을 측정한다. 발목 혈압은 dorsalis pedis pressure와 posterior tibial pressure 중 높은 혈압을 선택하고 양쪽 위팔 혈압 중 높은 위팔 혈압을 선택하여, 발목 혈압을 위팔 혈압으로 나눈 값으로 양쪽 각각의 발목-위팔지수로 채택하면 된다[14]. 휴식기 발목-위팔지수 결과는 비정상(≤ 0.90), 경계($0.91 \sim 0.99$), 정상($1.00 \sim 1.40$), 압축이 되지 않는 혈관(> 1.40)으로 보고한다[14,17-20]. 말초혈관질환의 고위험군이나 병력 청취나 진찰 과정에서 의심할 만한 정황이 없다면 발목-위팔지수를 검사해 보는 것을 권고한다[2,4,21-24]. 그러나 말초혈관질환의 고위험군이 아니고 병력 청취나 진찰 과정에서도 의심할 만한 정황도 없다면 발목-위팔지수 검사를 권고하지는 않는다[25-27].

2) Segmental lower extremity blood pressure and Doppler or plethysmographic waveforms (pulse volume recordings)

이 검사는 종종 발목-위팔지수와 함께 시행하는 경우

가 많다. 병변이 있는 부위(aortoiliac, femoropopliteal, infrapopliteal)를 찾기 위해 사용할 수 있다[28,29].

3) 생리학적 기능 평가를 위한 검사들

① 운동부하시 발목-위팔지수(exercise treadmill ankle-brachial index)

하지 증상에 영향을 줄 수 있는 기능적인 제한을 객관적으로 측정할 목적으로 시행할 수 있으며, 말초혈관질환의 증상은 있는데 휴식기 발목-위팔지수가 정상 혹은 경계의 범위에 있는 경우(> 0.90 and < 1.40)에 말초혈관질환의 진단을 확정하기 위해 시행을 권고한다. 또한 발목-위팔지수가 비정상인 경우(< 0.90)에서도 객관적으로 기능을 평가하기 위해 시행할 수 있다[29-35].

② 발가락-위팔지수(toe-brachial index)

석회화로 인해 압축이 되지 않는 혈관(non-compressible arteries, ABI > 1.40)에서 혹은 위중한 하지허혈(critical limb ischemia)이 의심되는 환자에서 관류(perfusion) 여부를 평가할 때 시행할 수 있다[35-38].

③ 경피 산소분압(transcutaneous oxygen pressure, $TcPO_2$)이나 피부 관류압(skin perfusion pressure)

발목-위팔지수가 정상이거나 경계에 해당하나(> 0.90 and ≤ 1.40) 낮지 않는 상처나 괴사가 있다면, 위중한 하지허혈을 진단하기 위해 파형 검사를 동반한 발가락-위팔 지수 측정이나 경피 산소분압 혹은 피부 관류압 검사를 고려할 수 있다. 또 발목-위팔지수가 비정상이면(≤ 0.90) 낮지 않는 상처나 괴사를 동반하고 있다면 국소 관류 여부를 확인하기 위해 파형 검사를 동반한 발가락-위팔 지수 측정이나 경피 산소분압 혹은 피부 관류압 검사를 고려할 수 있다[39-43].

4) 해부학적 위치 파악을 위한 영상 검사들

Duplex ultrasound, computed tomography angiography (CTA), magnetic resonance angiography (MRA), invasive angiography 등은 증상이 있는 고위험군 환자에서 혈관개통(revascularization)을 고려할 경우에 시행한다

[44-47]. 이러한 방법들은 그 검사 방법에 따라 시술에 따른 위험도가 있을 수도 있다. 따라서 비침습적 혹은 침습적인 혈관촬영(CTA 혹은 MRA)은 무증상인 환자에서 해부학적 위치를 찾을 목적으로 시행하지 말 것을 권고한다[48-50].

결론

말초혈관질환의 진단에 관해 2016 AHA/ACC와 2017 ESC 가이드라인을 참고로 살펴보았다. 이 두 가지 가이드라인을 볼 때 염두에 둘 것이 있는데, 우선 AHA/ACC 가이드라인은 말초혈관질환을 보게 되는 모든 의사들을 대상으로 하며 하지혈관질환에 국한하여 설명하고 있는 반면에 ESC 가이드라인은 순환기 전문의들을 대상으로 하며 하지혈관질환뿐만 아니라 다른 말초혈관질환도 포함하고 있다. 또, AHA/ACC 가이드라인은 소규모라도 잘 디자인된 비무작위 연구도 상당부분 채택하고 고려한 반면, ESC 가이드라인은 이런 연구는 증거 레벨 C로 평가하였다는 차이가 있다[51].

그러나 두 가이드라인 모두 말초혈관질환 의심 시 진단적 접근에서는 큰 차이는 없다. 첫 진단적 검사로 발목-위팔지수를 시행하도록 권고하고 있으며 처음부터 해부학적 위치를 판단하기 위한 영상검사를 하는 것은 권고하지 않는다. 다만, 발목-위팔지수 검사만으로는 놓치는 경우가 있어 이를 위한 다른 추가적인 검사들을 고려할 수 있을 것이다.

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