Vascular Assessment

As a hospital PT you won't be the first provider screening circulatory function, but you can add important pieces to the diagnostic puzzle with a few quick physical tests.

Hypoperfusion can be multifactorial – in a patient with aortic insufficiency and peripheral atherosclerosis, an episode of hypotension can produce symptoms (sometimes transient) easily mistaken for other problems, including dizziness and limb pain.

In a patient at risk for peripheral vascular disease, therapists should check pulses for symmetry (radial and posterior tibial are a start).

Consider checking for asymmetry in BP at either upper extremity. 15 mmHg difference between arms is considered a meaningful predictor.

Because of anatomy, typically venous insufficiency ulcers present on the medial surface of the lower extremity, and wounds caused by arterial insufficiency on the anterolateral shin. Hyperpigmentation and swelling are more commonly associated with venous insufficiency, while pallor and sometimes loss of hair (and "shiny" quality of skin) may present in arterial insufficiency.

Assess limb girth, and take a measurement if extremities aren't clearly symmetric. Note temperature to touch and overall appearance of skin.

Rubor, erythema, and clubbing can be important observations. Is rubor worsened in dependent position, and relieved with elevation? Is erythema symmetric? Is it blanchable? Clubbing is protuberant enlargement of fingertips (or distal toes), and indicates inadequate oxygenation. Check capillary refill by providing pressure at nailbeds and noting time for color to return to normal (< 2-3 sec is normal).

Look for JVD, which can provide a clue about Right heart pressure

Vascular claudication sometimes follows a pattern of pain with exertion, relieved by rest. Sometimes paresthesias are reported.

Ankle-Brachial Index is tested in supine by checking both DP and PT pulses (by doppler) in either foot against brachial BP at either arm, and reported by side.

For example: Left ABI is BP at L DP or PT (whichever is higher) / BP at LUE or RUE (whichever is higher).

Usually ABI > 1.4 or < 0.8 warrants vascular surgery evaluation, though urgency depends on values and other factors.

Subclavian Steal Syndrome is posterior circulation hypoperfusion caused by diversion of blood (via retrograde flow) from the vertebral artery to the ipsilateral arm.

This can produce transient posterior-circulation symptoms (dizziness, ataxia, tinnitus, syncope) and/or UE symptoms (pain, weakness).

In a patient with episodic dizziness, check BP between arms, pulses on either side, and ask screening questions (though they may be low-yield).

Pulses are commonly graded using this scale:

0: absent
1+: faint, but detectable
2+: slightly diminished
3+: normal pulse
4+: bounding

Homan's test is commonly taught to PTs, though the sensitivity is low.

Wells' DVT criteria should be considered:

- Active cancer (+1)
- Bedridden > 3 days or major surgery within 12 wks (+1)
- Calf swelling > 3 cm relative to other leg (+1)
- Collateral superficial veins present (+1)
- Entire LE swollen (+1)
- Localized tenderness along deep venous system (+1)
- Pitting edema (symptomatic leg only) (+1)
- Paralysis/paresis or recent plater immobilization of LE (+1)
- Previous DVT (+1)
- Alternative diagnosis as likely or more likely (-2)

1-2 points considered moderate DVT risk; 3+ points considered high DVT risk

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Consider Thoracic Outlet Syndrome. Use Allen's Test.