CLLI is a

objectively

manifestation of

proven Peripheral

Arterial Disease

ankle brachial

index of < 0.90.

perfusion

(PAD) defined by

These are due to

chronic (> 2 week)

inadequate tissue





Standard Treatment Workflow CHRONIC LOWER LIMB ISCHEMIA (CLLI)

ICD-10-M62.262

PRESENTATION

- · Claudication or pain at rest, paresthesia, with or without tissue loss, impaired healing or infection (ulcer or gangrene)
- Absent/weak pulse depending on level of occlusion

COMMON CAUSES OF CLLI

- · Atherosclerosis: Elderly, smokers with diabetes mellitus or chronic renal insufficiency
- Vasculitis: Buerger's disease, Takayasu arteritis
- Aortic coarctation
- Delayed presentation of an Acute Ischemic Insult: Trauma, Thromboembolism, Dissection

CLINICAL STAGING

- The clinical profile is classified into
- a) Asymptomatic
- b) Mild claudication (No life-style limitation)
- c) Moderate or severe claudication (Life style limiting) d) Chronic severe (or critical) limb ischemia:
- Compromised blood flow, causing limb pain at rest+/ulcers or gangrene

ANKLE BRACHIAL INDEX: Ratio of Blood Pressure in ankle and in arm. The resting ankle brachial index (ABI) is the initial diagnostic test

- Interpretation
 - 0.90 to 1.40 is normal
 - < < 0.90 is abnormal and indicates presence of PAD</p> • 0.41 to 0.90 indicates mild to moderate PAD
 - < < 0.40 indicates severe PAD</p>
- >1.40 indicates abnormal (calcified arteries)

CLINICAL EVALUATION

HISTORY

- · Claudication: Pain/cramp in calf/foot/ thigh/buttock with walking that is relieved with rest
- Duration and progress of symptoms
- · Onset, duration and progress of ulcer/ gangrene, if any
- · Rest pain
- Identifying risk factors: Diabetes, hypertension, smoking, ischemic heart disease, family history, dyslipidaemia
- Syncope/blackout/stroke/mesenteric ischemia
- History suggestive of cardiac disorder (angina/palpitations, shortness of breath/ loss of consciousness)

EXAMINATION

- · Blood Pressure (Including ankle-brachial index, toe-brachial index in diabetes, elderly, renal insufficiency)
- · All peripheral pulses
- · Condition of the limb: temperature, colour, hair loss, atrophy, nail bed capillary filling, sensation and motor power, gangrene/pre-gangrene
- Wound inspection (if any)
- · Comorbidity evaluation: CVS, Renal Diabetes mellitus, CNS, neuropathy
- · Evaluation for possible venous conduits

DIAGNOSTIC EVALUATION OF A PATIENT WITH CLLI

History, Physical Examination Suspected CLLI Ankle Brachial Index >0.9 < 0.9 Duplex Ultrasound/Doppler to confirm Significant CLLI obstruction and localization + *Risk ruled out factors assessment and management Co-morbid evaluation: Cardiac, renal and endocrine work up

Moderate/Severe Mild Claudication Claudication

Critical Limb Ischemia

No further investigations

CT Angio/MRA/DSA if conservative treatment fails and intervention is planned

CT Angio/MRA/ DSA

MANAGEMENT OF INTERMITTENT CLAUDICATION

Intermittent Claudication

Mild Claudication, No Moderate/Severe Claudication, Lifestyle lifestyle limitation limitation

- ***Antiplatelet therapy
- **Exercise Training *Risk Factor
- Modification
- 4. Annual Follow up

CT:

DSA:

- ***Antiplatelet therapy
- **Exercise Training
- 3. Cilostazol/Naftidrofuryl/Pentoxifylline 4. *Risk Factor Modification

5. Follow-up at 1, 3, 6 months and annually Symptomatic/functional improvement No symptomatic improvement or worsening of symptoms Continue Same CTA/MRA/DSA for morphological delineation of Annual follow up obstruction

- 1. #Revascularization (Endovascular/Surgery)
- ***Antiplatelet Therapy
- *Risk Factor Management Follow up at 1, 3, 6 months and annually

Digital Subtraction Angiography

Computed Tomography Angiography

DIFFERENTIAL DIAGNOSIS OF CLLI DIFFERENTIATING TEST Spinal stenosis, root compression Ankle brachial index (ABI), Doppler **Arthritis** ABI, Doppler, X-Ray **Venous Claudication** ABI, Doppler Compartment Syndrome ABI, Doppler, compartment pressure

MANAGEMENT

*RISK FACTOR MANAGEMENT

- · Lifestyle modification (graded exercise)
- Control of HTN(BP< 140/90), Control of Diabetes Mellitus (HbA1c< 7.0)
- · Low fat diet, exercise
- · Atherosclerosis: Start statins, antiplatelets

EXERCISE REHABILITATION FOR **CLAUDICATION

Graded and supervised walking three times a week, beginning with 30mins and increasing to 1 hour per session, at an intensity that will induce claudication within 3-5 mins

#REVASCULARISATION (PREREQUISITES)

- Good distal vessels (run-off)
- · Able to walk before critical limb ischemia
- Life expectancy of >1 year
- Satisfactory general condition

MEDICAL MANAGEMENT · Antiplatelets*** – Aspirin 75-100mg

- orally/Clopidogrel 75mg orally OD · Analgesic – Paracetamol +Opioid
- **CIRCULATORY MODULATORS**
- · Cilostazol 100mg orally. (C.I. in CHF, unstable Angina, Recent M.I.,
- Tachyarrythmias) · Naftidrofuryl 200mg orally TDS
- · Pentoxifylline 400mg orally TDS (C.I. in recent cerebral/retinal haemorrhage, intolerance of methyl xanthines)

LOCAL WOUND MANAGEMENT

- Prevention and treatment of infection
- · Leg dependency, off-loading, nonadherent dressing, abscess drainage, debridement, digital amputation^{\$}

AMPUTATION⁵

Non-salvageable limbs, fixed contractures, severe infected/necrosis, failed revascularisation with persistent tissue loss

MANAGEMENT OF CRITICAL LOWER LIMB ISCHEMIA

Critical Lower Limb Ischemia

- 1. CTA/MRA/DSA for anatomical details aorta and lower limb arterial
- 2. Evaluation of general condition and comorbidities.
- 3. Antiplatelet Therapy
- 4. Evaluation of condition of limb: Ulcer, gangrene, abscess, infection
- 5. Pain Relief ± Antibiotics
- 6. Cilostazol/Naftidrofuryl/Pentoxifylline
- 7. *Risk factor management
- 1. Diffuse disease with poor distal vessels, not amenable to intervention or 2. General condition poor
- 1. Discrete disease with good distal vessels, suitable for intervention
- 2. Satisfactory general condition

Candidate for Revascularization#

Not a candidate for Revascularization

Stable pain

and lesion

Medical treatment

(non-operative)

Not-tolerable pain,

spreading infection 1. Amputation

2. Prosthesis and

rehabilitation

- 1. #Revascularization as appropriate 2. Antiplatelet Therapy***
- 3. Risk factor management*

4.Follow-up

ABBREVIATIONS

MRA: Magnetic Resonance Angiography PAD: Peripheral Arterial Disease

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