

STANDARD TREATMENT WORKFLOW (STW)

CHRONIC LOWER LIMB ISCHEMIA

Shiv Choudhary¹, Gautam Ganguli², Sai Chandran BV³, Dhiren Shah⁴, T Sunder⁵, Lokeshwar Rao Sajja⁶, Shantanu Pande⁷, Ambuj Roy⁸, Arun Kumar Yadav⁹

¹All India Institute of Medical Sciences Delhi; ²Armed Forces Medical College, Pune Maharashtra; ³Jawaharlal Institute of Postgraduate Medical Education and Research Pondicherry; ⁴Ahmedabad; ⁵Apollo Hospital, Chennai; ⁶Telangana; ⁷Sanjay Gandhi Postgraduate Institute of Medical Sciences, Lucknow; ⁸All India Institute Of Medical Sciences Delhi; ⁹Armed Forces Medical College, Pune Maharashtra

CORRESPONDING AUTHOR

Shiv Choudhary, All India Institute of Medical Sciences Delhi

Email: shivchoudhary@hotmail.com

CITATION

Choudhary S, Ganguli G, Chandran SBV, Shah D, Sunder T, Sajja LR, Pande S, Roy A, Yadav AK. CHRONIC LOWER LIMB ISCHEMIA. Journal of the Epidemiology Foundation of India. 2024;2(2Suppl):S259-S260.

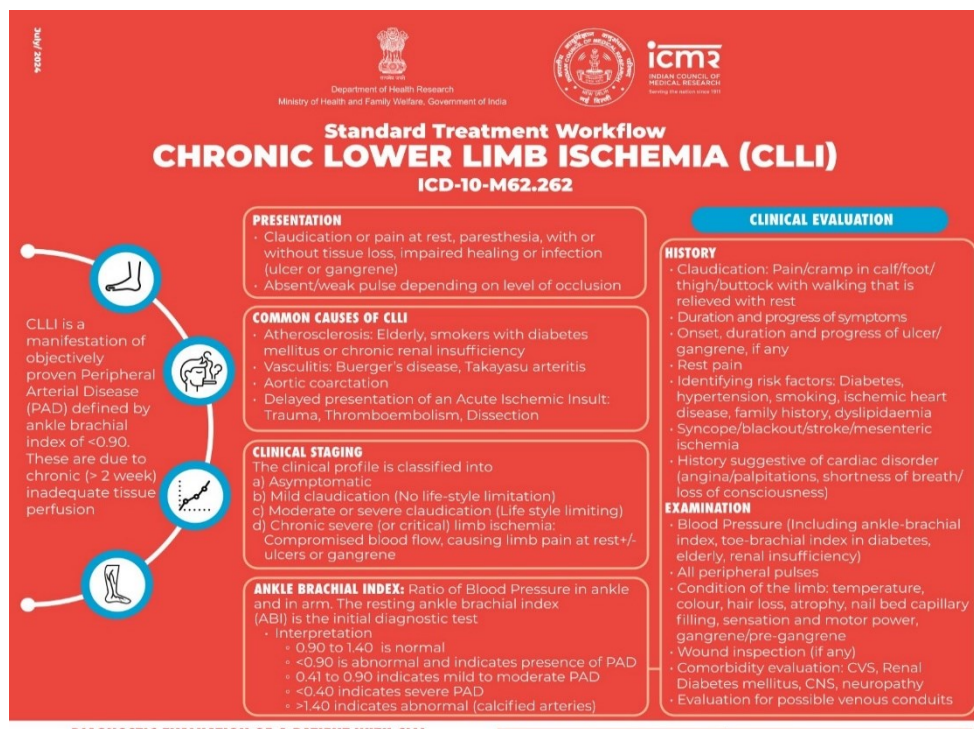
DOI: <https://doi.org/10.56450/JEFI.2024.v2i2Suppl.004>

This work is licensed under a Creative Commons Attribution 4.0 International License.

©The Author(s). 2024 Open Access

DISCLAIMER

This article/STW, was originally published by Indian Council of Medical Research (ICMR) under Standard Treatment Workflow. The reprinting of this article in Journal of the Epidemiology Foundation of India (JEFI) is done with the permission of ICMR. The content of this article is presented as it was published, with no modifications or alterations. The views and opinions expressed in the article are those of the authors and do not necessarily reflect the official policy or position of JEFI or its editorial board. This initiative of JEFI to reprint STW is to disseminate these workflows among Health Care Professionals for wider adoption and guiding path for Patient Care.



Department of Health Research
Ministry of Health and Family Welfare, Government of India

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

- Asymptomatic
- Mild claudication (No life-style limitation)
- Moderate or severe claudication (Life style limiting)
- 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
- 0.41 to 0.90 indicates mild to moderate PAD
- <0.40 indicates severe PAD
- >1.40 indicates abnormal (calcified arteries)

CLINICAL EVALUATION

HISTORY

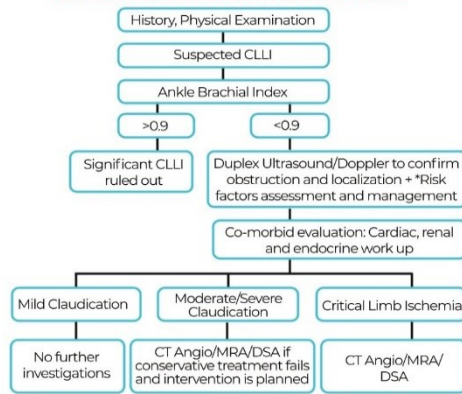
- Claudication: Pain/cramp in calf/foot/thigh/buttock with walking that is relieved with rest
- Duration and progress of symptoms
- Onset, duration and progress of ulcer/gangrene, if any
- Rest pain
- Identifying risk factors: Diabetes, hypertension, smoking, ischemic heart disease, family history, dyslipidaemia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

EXAMINATION

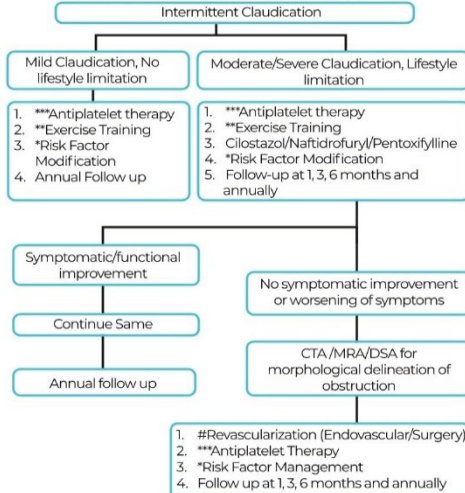
- Blood Pressure (Including ankle-brachial index, toe-brachial index in diabetes, elderly, renal insufficiency)
- All peripheral pulses
- Condition of the limb: temperature, colour, hair loss, atrophy, nail bed capillary filling, sensation and motor power, gangrene/pre-gangrene
- Wound inspection (if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

CLLI is a manifestation of objectively proven Peripheral Arterial Disease (PAD) defined by ankle brachial index of <0.90. These are due to chronic (> 2 week) inadequate tissue perfusion

DIAGNOSTIC EVALUATION OF A PATIENT WITH CLLI



MANAGEMENT OF INTERMITTENT CLAUDICATION



DIFFERENTIAL DIAGNOSIS OF CLLI

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

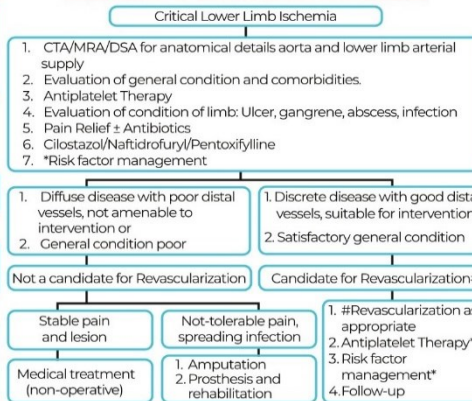
MEDICAL MANAGEMENT

- 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., Tachyarrhythmias)
 - 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, non-adherent dressing, abscess drainage, debridement, digital amputation[†]
- AMPUTATION[†]**
 - Non-salvageable limbs, fixed contractures, severe infected/necrosis, failed revascularisation with persistent tissue loss

MANAGEMENT OF CRITICAL LOWER LIMB ISCHEMIA



ABBREVIATIONS

- CT DSA:** Computed Tomography Angiography Digital Subtraction Angiography
- MRA:** Magnetic Resonance Angiography
- PAD:** Peripheral Arterial Disease

REFERENCE

1. Carle HS, Bradbury AW, Nishi R, White JF, Dick F, Frerking B, Mills JL, Picco JB, Surprey KB, Murad MH, Aboyans V, Akasy M, Alessandrino VA, Armstrong D, Azuma N, Becht J, Bengtsson M, Björck M, Chakraborti N, Cheng S, Dawson J, Dobos ES, Dworkin A, Dworkin S, Eckstein HK, Ferraresi R, Gambhir R, Carrigallo M, Cargnello P, Goode S, Gray B, Guo W, Gupta PK, Hinchliffe B, Jettly P, Komori K, Lavery L, Liang W, Lockstein R, Manard M, Mera S, Miyata T, Moneta C, Munoz Prado JA, Munoz A, Paskin JE, Patel M, Pomposelli P, Powell B, Riddella R, Rogiers L, Scherrer A, Schmittner P, Taylor S, De Lorenzo MV, Veller N, Vermeulen C, Wang J, Wang S, CVC Writing Group for the Joint Guidelines of the Society for Vascular Surgery (SVS), European Society for Vascular Surgery (ESVS), and World Federation of Vascular Societies (WFVS). Global Vascular Guidelines on the Management of Chronic Limb-Threatening Ischemia. Eur J Vasc Endovasc Surg. 2019 Jul;36(7):51-100.e13. doi: 10.1056/ejvs.2019.05.006. Epub 2019 Jul 8. Erratum in: Eur J Vasc Endovasc Surg. 2020 Mar;36(3):497-498. doi: 10.1056/ejvs.2020.03.025. Erratum in: Eur J Vasc Endovasc Surg. 2020 Jun;36(6):619-620. PMID: 31827354; PMCID: PMC6825042.

KEEP A HIGH THRESHOLD FOR INVASIVE PROCEDURES

This STW has been prepared by national experts of India with feasibility considerations for various levels of healthcare system in the country. These broad guidelines are advisory, and are based on expert opinions and available scientific evidence. There may be variations in the management of an individual patient based on his/her specific condition, as decided by the treating physician. There will be no indemnity for direct or indirect consequences. Kindly visit the website of ICMR for more information: (icmr.gov.in) for more information. ©Indian Council of Medical Research, Ministry of Health & Family Welfare, Government of India.