

INFRAINGUINAL ENDOVASCULAR THERAPY AS THE PRIMARY APPROACH IN PATIENTS WITH CRITICAL LIMB ISCHEMIA COMPARED WITH SURGICAL APPROACH

Thesis

Submitted for partial fulfillment of M.D degree in vascular surgery

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2017



سورة طه (آية ١١٤)

ABSTRACT

Critical limb ischemia (CLI) is characterized by multi-level disease, high burden of comorbidity and limited life span. The care of patients with CLI is not straightforward because many of them have significant co-morbidities including renal disease, advanced age, Hypertension, diabetis mellitus and Hyperlipidemia. Percutaneous balloon angioplasty improves outcomes in CLI and has increasingly become the first-line treatment for diabetic patients with CLI .Compared to surgical bypass grafting, the endovascular treatment have the advantages of being minimally invasive , associated with less morbidity and mortality, lower cost, shorter hospital stay, can be repeated and preserve the saphenous vein

Aim of the study: This study was undertaken in an effort to evaluate the efficacy of angioplasty as a primary choice for the management of infrainguinal arterial diseases compared with surgical approach in aretrospective manner.

Patients and methods: This is a prospective study conducted on patients with chronic atherosclerotic critical lower limb ischemia presenting to us along the period of 3/2015 to 11/2016. Patients presenting with non-salvageable limbs requiring primary major amputation, acute thrombosis, embolic occlusions, aneurysms ,trauma, autoimmune, arthritis or connective tissue disorders (e.g. Behcet, SLE), entrapment syndromes, were excluded from this study. Patients were investigated routinely by duplex and selectively by CTA. All endovascular procedures were done in our angiosuite under local

anaesthesia and all open surgery were done in the operating theater under epidural or general anaesthesia

Result : This a study of 100 cases of CLI the mean age was 61 male/female ratio 2:1. Patients with Rutherford IV, V, and VI were 24, 17 and 33 respectively. Level of occlusions included, SFA, popliteal and crural in 47,19,34 respectively. Multilevel diseases were encountered in 85 patients. 50 patients were treated by endovascular and 50 patients needed surgery. Tackling of lesions by subintimal and intraluminal were in 3 and 97 respectively. Technical success was in endovascular and open is 93%, 85% respectively. On 12 months follow up 1ry patency, 2ry patency, limb salvage in 77.8%, 84.7% and 90.7% respectively. The overall mortality was 3%. Multiple lesions, length of lesions > 10 cm, subintimal passage lowered the technical success, patency rate, limb salvage.

Conclusion: Endovascular treatment is the 1st choice of revascularization in CLI with high technical success rate and lower mortality. Outcome being worse in case of renal , cardiac patients , Rutherford VI , multiple lesions, length of lesions > 10 cm, subintimal passage

Acknowledgment

All Thanks go to **Allah** the most Gracious and Merciful, whose light guided me throughout my whole life. I would like to deeply thank my professors who aided me in this work and were the best example for demonstrating how the relationship between a professor and his student should be. Without them this work wouldn't have seen the light. They were always directing me and guiding me to the right thing. All the appreciation and gratitude go to them.

I would like to thank **Prof. Dr. Ahmed Mahmoud Saad El Din** for his continuous support and his fatherly sincere advices that helped me not only finishing this work, but also helped me greatly in my scientific life and work(Many Many thanks my professor).

I would like to thank **Prof. DR .Mohamed Shawky El waraky** . professor of interventional radiology, National liver institute . Menoufyia university for his constant support and help to finish this work.

Also I would like to thank. **Dr. Abdulrahman Mohamed Ahmed Salem** for without his continuous scientific guiding and generous data and information he was giving I wouldn't have been able to complete this work.

Thanks to **My Family** who were always by my side and supporting my back pushing me forwards to success.... Thanks a lot..

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List of Abbreviations

CLI	:Critical limb ischemia
PAD	: Peripheral arterial disease
ABI	: Ankle – brachial index
TASC	: Trans – Atlantic Inter society consensus
MI	: Myocardial - infraction
CDI	: Color duplex Imaging
DPA	: Dorsalispedis artery
PTA	: posterior tibial artery
CTA	: computed tomographic angiography
MRA	: Magnetic resonance angiography
CT	: Computed tomography
CO2	: Carbon dioxide
BASIL	: By pass versus angioplasty in severe ischemia of the leg
ET	: Endovascular treatment
SAFARI	: Subintimal arterial flossing with antegrade retrograde intervention
SFA	: Superficial femoral artery
RCTS	: Randomized controlled trials
FDA	: Food and drug administration

Abbreviations

SIA	: Subintimal angioplasty
CFA	: Common femoral artery
RSFAE	: Remote superficial femoral artery endarterectomy
CTOs	: Chronic total occlusions
CDT	: Catheter directed thrombolysis
EPD	: embolic protection devices
PTFE	: Polytetrafluoro – Ethylene
BTK	: Below the knee
SA	: Subintimal angioplasty
CLL	: Critical lower limb
AMS	: Absorbable magnesium stents
DES	: Drug eluting stents
BMS	: Bare metal stents
SES	: Sirolimus eluting stents
PVD	: Peripheral vascular disease
NO	: Nitrous oxide
EV	: Endovascular treatment
CIN	: Contrast induced nephropathy
CN	: Contrast nephropathy

Abbreviations

LOCM	: Low osmolarity contrast media
HOCM	: High osmolarity contrast media
IOCM	:Intermediate osmolarity contrast media
ASA	: American society of anastheologists
SBG	: Surgical bypass grafting
MRSA	: Methicillin –resistance staphylococcus aureus
PAOD	: Peripheral Arterial occlusive disease
DFA	: Deep Femoral artery
HBD	: Heparin bonded -Dacron
HUV	: Human umbilical vein
GSV	: Great saphenous vein
CDI	: Color duplex imaging
DSA	:Digital subtraction angiography.
CBC	: Complete blood count
LEGS	: Lower extremity grading score .

Introduction

Critical limb ischemia (CLI), defined as more than two weeks of rest pain, ulcers, or tissue loss attributed to arterial occlusive disease, and is associated with great loss of both limb and life (*Slovu, 2008*).

Critical limb ischaemia (CLI) is a disease process with tremendous cardiovascular burden. The care of patients with CLI is not straightforward because many of them have significant co-morbidities including renal disease and advanced age that further contribute to the overall morbidity, mortality, dependency and poor life satisfaction. The decision to perform a revascularisation procedure (whether by surgical bypass or endovascular treatment) versus amputation or treat with medical therapy alone remains a challenge. (*Cieri et al, 2010*)

The primary risk factors for CLI include diabetes, hypertension, hyperlipidemia and tobacco use. Patients with diabetes are five times more likely to develop critical limb ischaemia than non-diabetics and up to 30% of patients with critical limb ischaemia are diabetic. (*Pedrini, 2003*)

The prognosis of occlusive arterial disease is considerably worse in diabetics than in non-diabetics. The proportion of patients suitable for intervention is lower, failure after revascularisation is often caused by sepsis, and perioperative mortality is increased. This poor outcome is explained by the distal location of the arterial lesions, and the frequent association with diabetic microangiopathy, nephropathy and cardiomyopathy. (*Cardon J M et al, 2008*)