ABSTRACT

In 1987, Taylor and Palmer recognized the clinical importance of angiosomes as three-dimensional units of tissues fed by a source artery. They defined six angiosomes of the foot and ankle originating from the posterior tibial artery (three angiosomes: the medial calcaneal artery angiosome, the medial plantar artery angiosome, and the lateral plantar artery angiosome), the anterior tibial artery (one angiosome: the anterior tibial artery and dorsalis pedis angiosome) and the peroneal artery (two angiosomes: the lateral calcaneal artery angiosome and anterior perforator artery angiosome).

Direct revascularization of an artery feeding an area of the foot, the angiosome, affected by ischemic wound or gangrene is expected to have better chances of clinical success than revascularization of any other artery not directly feeding the affected anatomical area. However the results of angiosome-targeted revascularization are controversial.

KEY WORDS

-Angiosome

-Direct revascularization

-Indirect revascularization

ANGIOSOME-TARGETED LOWER LIMB REVASCULARIZATION FOR ISCHAEMIC FOOT WOUNDS

Essay

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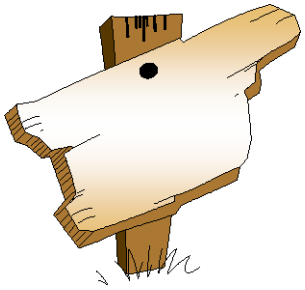

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LIST OF ABBREVIATION

AFS	**:**	Amputation free survival
SFA	**:**	Superficial femoral artery
CTO_s	**:**	Chronic total occlusions
CLI	**:**	Critical limb ischaemia
DR	**:**	Direct revascularization
IR	**:**	Indirect revascularization
IR_c	**:**	Indirect revascularization through collaterals
EVT	**:**	Endovascular therapy
BTK	**:**	Below the knee
MA	**:**	Major amputation
MALE	**:**	Major adverse limb event
PTA	**:**	Percutaneous transluminal angioplasty
TcPO2	**:**	transcutaneous oxygen pressure
TUC	**:**	Texas University Wounds Classification

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INTRODUCTION

Ischemic tissue lesions of the foot carry an excessive risk of major amputation, particularly in patients with diabetes.***(Biancari et al., 2007)***

Prompt referral of these patients to a vascular surgeon for assessment of lower limb circulation, revascularization, and surgical wound care may avoid limb loss.***(Lepäntalo et al., 2000)***

A number of patients with infected wounds or gangrene of the foot still require major amputation despite an patent bypass graft or a successful angioplasty. Such failures to achieve limb salvage are often caused by aggressive infection or extensive gangrene of the ischemic foot. However, recent studies have suggested that the clinical success of bypass surgery or angioplasty may depend on the target of revascularization.***(Alexandrescu et al.,2012)***

In 1987, Taylor and Palmer recognized the clinical importance of angiosomes as three-dimensional units of tissues fed by a source artery. They defined six angiosomes of the foot and ankle originating from the posterior tibial artery (three angiosomes: the medial calcaneal artery angiosome, the medial

plantar artery angiosome, and the lateral plantar artery angiosome), the anterior tibial artery (one angiosome: the anterior tibial artery and dorsalis pedis angiosome) and the peroneal artery (two angiosomes: the lateral calcaneal artery angiosome and anterior perforator artery angiosome).***(Biancari et al., 2007)***

These angiosome units are bordered by choke vessels, which are reduced-caliber anastomosing vessels which are normally the barrier in the vasculature and link neighbouring angiosomes to each other and demarcate the border of each angiosome.***(Attinger et al., 2006)***

Furthermore, direct arterial-arterial connections exist between angiosomes and compensate for ischemic events occurring in an adjacent angiosome. As compensatory collateral circulation can be affected by severe atherosclerosis of the foot arteries, angiosome-targeted revascularization is expected to improve wound healing and limb salvage compared with indirect revascularization, which provides blood flow only through collateral vessels originating from a non-affected angiosome.***(Varela et al., 2010)***

In other words, direct revascularization of an artery feeding an area of the foot, the angiosome, affected by ischemic wound or gangrene is expected to have better chances of clinical success than revascularization of any other artery not directly feeding the affected anatomical area. However the results of angiosome-targeted revascularization are controversial.***(Rashid et al., 2013)***

AIM OF THE WORK

This essay is aimed to assess the advantage of direct revascularization of the foot angiosome affected by ischemic tissue lesions to improve wound healing and limb salvage rates compared with indirect revascularization.