Introduction

Peripheral arterial disease denotes stenotic, occlusive, and aneurysmal diseases of the aorta and its branch arteries, exclusive of the coronary arteries ***(Hirsch et al., 2006).***

Main causes of peripheral arterial disease include: Atherosclerosis, Buerger's disease, Arteritis, Fibromuscular dysplasia ***(Norgren et al., 2007)***, while other causes as Raynaud's syndrome, Thoracic outlet compression should be paid special attention in upper limb ischemia ***(Pearce, 2005).***

Non-invasive diagnostic tools include: segmental Doppler pressures, and Duplex ultrasonography as the most commonly used methods for diagnosis of peripheral vascular disease ***(AbuRahma, 2007)***, and magnetic resonance angiography (MRA) which provides three-dimensional (3D) data sets. Contrast-enhanced MRA (CE MRA) uses contrast agents to enhance the vascular lumen ***(Douek et al., 2005).***

Invasive diagnostic tools include: Multislice computerized tomography angiography (CTA) which provides outstanding detail of the peripheral vessels ***(Murphy et al., 2008)***, in addition to conventional angiography, once the gold standard for the diagnosis of vascular disease, and is reserved largely for intervention ***(Perry and Statler, 2007).***

New emerging diagnostic tools comprise: Intravascular ultrasound (IVUS) which facilitates accurate placement during endovascular procedures ***(Reid et al. , 2007)***, and Angioscopy which is the only method that allows direct in vivo visualization of the interior of the blood vessels in real-life colors ***(Miller and Holzenbein, 2005).***

Non-operative management of peripheral vascular disease (risk factor modification) depends on normalization of LDL cholesterol levels, smoking cessation, treatment of diabetes, and lowering of blood pressure ***(Samson, 2005).***

The last decade has seen a significant increase in the use of endovascular procedures and a decrease in rates of major amputation ***(Rowe et al., 2009).***

Percutaneous interventions with balloon angioplasty, bare metal stents, and the more preferable for the femoral and infrafemoral arteries, drug-eluting stents, offer dramatic improvement of the stenosed or occluded lumen ***(Caralis and Bakris, 2005).*** Technologic advances in the past several years have led to the development of atherectomy devices ***(Cheng and Silva, 2009).***

Surgical options for chronic, critical lower limb ischemia include local amputations and a variety of traditional surgical revascularization procedures. These maybe supplemented with localized endarterectomies or patch angioplasties ***(Veith et al., 2009).*** Lumbar chemical sympathectomy is used principally in inoperable peripheral vascular disease to alleviate symptoms of rest pain and as an adjunct to other treatments for ulcers ***(Nesargikar et al., 2009).***

Strategies to augment collateral vessels formation involve stimulation of angiogenesis, vasculogenesis, and arteriogenesis by manipulating the local concentrations of, and responses to, angiogenic growth factors, especially VEGF (vascular endothelial growth factor) and FGF (fibroblast growth factor) ***(Donnelly and Rowlands, 2008).***