SUMMARY

The ultimate goal of technologic advancements in medicine is to improve patient safety and care. Until as recently as ten years ago, catheter-directed conventional angiography and digital subtraction angiography were the main modalities available for detailed and accurate evaluation of the peripheral arterial trees, it provided sufficient anatomical details to allow surgical planning for patients with peripheral arterial disease. However the complications and patient discomfort associated with these techniques have prompted the need of less invasive technique for both initial assessment and surgical planning.

After the availability of multi-detector row CT (MDCT), adequate resolution imaging of the entire inflow and runoff arteries became possible with a single acquisition and a single intravenous contrast medium injection. CT angiography has become a robust method of diagnostic angiographic imaging. Many studies have proved its accuracy as compared to the gold standard DSA.

The aim of this study is to illustrate the role of CT angiography versus Doppler ultrasonography as the most commonly used diagnostic modalities in assessment of different arterial diseases of the peripheral upper extremities.

Through the present study of various applications of extremity CT angiography and vascular ultrasonography were presented to evaluate a wide range of diseases. CTA Peripheral provides complete delineation of the upper limb arterial tree including inflow and outflow arteries, including lesion number, length, stenosis diameter and morphology, adjacent normal arterial caliber,

degree of calcification, and status of distal runoff vessels. These findings help in planning the procedure with respect to route of access.

For better results of CT angiography in evaluating arterial diseases and injuries of vessels in the extremities, certain aspects of its use must be mastered, such as timing of contrast administration and generation and use of high-quality post-processed images. [145]

However, Doppler ultrasonography remain an important diagnostic modality for the peripheral arterial disease, as used alone or in combination with other modalities Doppler examination is relatively inexpensive and non invasive and use no ionizing radiation or contrast material. It provides good clue about the hemodynamic situation distal to an occlusion . US will likely continue to have a role in many settings, such as for targeted questions (eg, postangioplasty assessment, pseudoaneurysms), in portable examinations. [70]