

Radiological Techniques of Examination for Cardiovascular System in Ayurveda

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INTRODUCTION

Radiology is the branch of medicine that uses imaging technology to diagnose and treat disease. The new technology provides us with faster, sharper Images of the heart helping better diagnosis potential blockage which could lead to attacks.

There are numerous imaging techniques are available for examination of heart and it essential that the most appropriate technique is applied according to any given situation. The diagnostic tests in cardiology are method of identifying heart condition associated with healthy Vs Unhealthy pathological heart function. The main technique for examination plain chest radiography Echocardiography cardiac ultrasound) CT Scanning, MRI scanning, Radionuclide imaging and Angiography. These techniques have particular application and must be considered in the countered of its diagnostic appropriately [1-3].

X-RAY CHEST

The chest X-ray is the commonest type of imaging

examination of the chest. It can be externally valuable in cardiac assessment in their ways [4].

1. Cardiac size and contour can be clearly demonstrated, and the heart produced in this way will give many important clues as to chamber enlargement.
2. The evaluation of the lung field care full analysis of pulmonary appearances will give vital clue to cardiac function.
3. It demonstrates additional feature related to cardiac diseases which may include metallic or other implants calcification or bony anomalies which are related to the underlying heart abnormality.

ECHOCARDIOGRAPHY

It is a highly versatile technique that had become central in craniological diagnosis. It is generally central in craniological diagnosis. It is generally performed from the trans-thoracic route using a small “footprint “sector scanner. It accesses to the heart through the intercostal spaces while avoiding interposition of pulmonary air, two-

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dimensional imaging or real time sector scanning gives direct imaging information about the anatomy and physiology of the heart mode imaging is a one-dimensional evaluation using a single line of ultrasound interrogation down specific orientation through cardiac structures. It is useful for precise measurement and timing of cardiac event. Doppler echocardiography allows evaluations of blood flow through the heart and is carried out using continuous - wave, pulsed wave, and color flow Doppler techniques [5].

Two-dimensional imaging has great advantage of demonstrating overall cardiac anatomy and movement and this excellent evaluation of many cardiac abnormalities.

TRANSOESOPHAGEAL ECHOCARDIOGRAPHY

It is use examination of heart from within the esophagus or stomach allows high frequency transducers to be used. Transesophageal echocardiography can be performed on outpatient basis usually with sedation and indicate in wide range of abnormalities, evaluation of thrombosis left atrium and congenital heart defect [6].

CONTRAST ECHOCARDIOGRAPHY

It is very effective echo study can be achieved with the intravenous injection of an agitated blood and saline mixture containing micro bubbles, this technique is easily performed. It is used for identification of right to left shunting or other mixing at atria or ventricular level. These bubbles will be absorbed during transit through the lungs, and it is also used for myocardial perfusion study [7].

STRESS ECHOCARDIOGRAPHY

In such circumstances normally contracting myocardium may become abnormal in function and this will be revealing the presence of important underlying coronary artery disease [8].

DOPPLER EXAMINATION

This technique employs a continuously emitting transducer adjacent to continuously receiving transducer. Color flow Doppler examination is based on the principle of pulsed Doppler technique and as such it is limited by high velocity flow. This technique is highly valuable in demonstrating normal and abnormal flow and easily and in many cases. Once, the flow has been identified a more precise evaluation can be achieved using specific continuous wave or pulsed Doppler interrogation [9].

CONTINUOUS WAVE DOPPLER EXAMINATION

Adjacent transmitter elements act as simultaneous transmitter and receiver. High velocity flow recordable, No depth resolution possible [10].

PULSED WAVE DOPPLER EXAMINATION

Some transducer used to transmit and receive pulse repetition frequency limits high velocity recording aliasing will result. Sample volume can be placed at specific depth.

COLOUR FLOW DOPPLER EXAMINATION

Multiple pulsing down each line allows colour encoding for flow image frame rate reduced due to multiple sampling.

COMPUTED TOMOGRAPHY (CT SCAN)

Computed tomography gives an excellent quality image of intrathoracic anatomy. It is more useful for assessing major cardiac structures and great vessels than detailed internal cardiac anatomy. It is effective in the diagnosis of abnormalities of great arteries and masses adjacent to the heart for diagnosing acute aortic disease, detection of calcification in the coronary arteries [11].

MAGNETIC RESONANCE IMAGING (MRI)

The area of cardiac examination is progressing rapidly and there is very considerable amount of potential for future development. MRI can demonstrate anatomy in full range of imaging planes including transverse coronal, sagittal and complex oblique. The main strength of cardiac MRI

technique lies in their flexibility and the complication of anatomical and functional studies [12].

ANGIOGRAPHY

Angiography still remains an important technique for evaluation of cardiac and great vessel anatomy. Coronary angiography equipment has very high X-Ray specification because diagnostic demands are extremely high imager solution must be capable of demonstration coronary

anatomical detail down to structures of 0.3mm or less and exposure time must not be more than 5 minutes.

Coronary angiography is a procedure that uses a special dye and contrast material and X-Ray to see how blood flows through the arteries in the heart. It can be used to help diagnose heart conditions, help guide future treatments [13].

CONFLICTS OF INTEREST

There are no conflicts of interest.

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