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Zafar Sajjad
Aga Khan University

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Zafar Sajjad

Department Of Radiology, Aga Khan University, Karachi. Pakistan.zafar.sajjad@aku.edu

With the improvement in technology and the increasing availability of Magnetic Resonance Imaging (MRI) it has become the standard of care for the imaging of the brain and the spinal cord for virtually all indications, the exception being trauma. As the technology has evolved the emphasis has been on the development of higher and higher field strength scanners. Among the current commercially available scanners 3.0 Tesla (3T) are the market leaders in terms of field strength and clinical applications. They represent the State of Art in terms of MRI, however they tend to be expensive to install and operate.The typical list price of a 3T scanner is around 2 million US dollars. Additionally as the technology is still evolving there are occasional issues with reliability and artefacts. The High end applications such as Magnetic Resonance Spectroscopy (MRS), functional Magnetic Resonance Imaging (fMRI), Tractography all benefit from the superior signal to noise ratio (SNR) that the 3T scanners offer. The high SNR also allows either shorter scan times or higher resolution imaging.This has led to true istropic voxel imaging being a reality. Neuroradiology and musculoskeletal radiology have been the biggest beneficiaries of 3T scanners[1].

At the other end of the market are the low field strength permanent scanners. These tend to be around 0.2-0.3 Tesla. They are relative inexpensive to install and operate. A typical 0.2T scanner cost around 0.5 million US dollars. Except for certain situations which require an open architecture such as MR guided intervention, they represent a compromised solution especially when it comes to neuroimaging. The SNR at the low field strengths preclude the use of several MR applications such echo plannar Diffusion Weighted Imaging (DWI). Although work arounds are available such as Line Diffusion Imaging for DWI applications the results are marginal. There has been a lot of marketing hype associated with the "open" scanners and the benefits for claustrophobic and paediatric patients; the development of short and wide bore scanners have largely put paid to this. Although the quality of images have improved over time the over whelming reasons these scanners are installed is their low cost[2,3].

Between these two extremes sits the global workhorse, the 1.0/1.5 Tesla (1.5T) scanner4,5,6. This type of MR scanner has the largest number of installations and the technology is robust, reliable and time tested. They offer a good balance between cost and applications. The scanners retail for an average price tag of 1.0 Million US dollars. Most of the applications available for 3T scanners are also available for 1.5T. With wide bore designs and flared and short scanners tunnels the patient's experience is very similar to a CT scan (albeit somewhat noisier).

In a country like Pakistan where the biggest consideration in the selection of treatment and investigation options is often financial a pragmatic approach has to be taken in equipment selection. The 3T only make sense for specialist tertiary care neurology or musculoskeletal centres. Given the image quality and the relative cost effectiveness of the 1.5T scanners, they are the natural choice for most academic centres7. The low field strength permanent magnet scanners are likely to dominate especially the private diagnostic centre market where bottom lines dictate the selection of equipment.

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