MRI COMPATIBLE PACEMAKERS IN A SINGLE OPERATOR LARGE VOLUME CENTER IN INDIA: PREMIUM TECHNOLOGY ADAPTATION IN A LOW-MEDIUM LEVEL ECONOMY.

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Introduction:
Permanent Pacemaker Implantation (PPI) is established therapy for Patients (Pts) suffering from bradycardia. Magnetic Resonance Imaging (MRI) compatibility is an important technological advancement in pacemaker therapy, however it is a non-essential attribute of therapy. There is an additional premium in terms of cost for these devices.

Methods:
MRI conditional pacemakers were introduced in 2009 in India, where 80% of device implantation procedures are self-paid by Pts. This is in the background of India being a Low-medium level economy as per World Bank. The proportion of MRI conditional pacemaker implants over past 10 years was studied.

Results:
Permanent Pacemaker Implantation (PPI) was performed in 544 Pts from 2009 to 2019. Single chamber PPI was performed in 161 and Dual chamber PPI in 383 Pts. Pacemaker replacements were performed in an additional 161 patients over this period of 10 years.

Of the 383 Dual Chamber PPIs, 180 were MRI conditional devices (47 %); 5 of the 161 Single Chamber PPIs were MRI conditional (3.1 %). Thus, 185 of 544 Pts (34 %) underwent MRI conditional PPI (Figure 1).

The number of MRI conditional implants exceeded the non-MRI implants in 2016 (7 years after the first introduction of MRI devices in 2009); thereafter they continued to be proportionately higher. Continued increasing trend resulted in only MRI conditional pacemakers being implanted in 2019.

Of the 161 Pts undergoing Pacemaker replacements, 20 received an MRI conditional device taking advantage of presence of MRI conditional chronic leads.

Conclusion:
MRI conditional pacemakers represent a non-essential premium technology in bradycardia therapy. There has been gradual, steady change with almost complete adaptation to the new technology over the past decade.
Figure 1: Non-MRI vs. MRI Conditional Pacemaker Implantations.