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Original Article

A survey of cardiac implantable electronic device implantation in India: By Indian Society of Electrocardiology and Indian Heart Rhythm Society



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ABSTRACT

Background: There is limited data regarding the demographics and type of cardiac implantable electronic device (CIED) in India.

Aim: The aim of this survey was to define trends in CIED implants, which included permanent pacemakers (PM), intracardiac defibrillators (ICD), and cardiac resynchronization therapy pacemakers and defibrillators (CRT-P/D) devices in India.

Methods: The survey was the initiative of the Indian Society of Electrocardiology and the Indian Heart Rhythm Society. The type of CIED used, their indications, demographic characteristics, clinical status and co-morbidities were collected using a survey form over a period of 1 year. **Results:** 2117 forms were analysed from 136 centers. PM for bradyarrhythmic indication constituted 80% of the devices implanted with ICD's and CRT-P/D forming approximately 10% each. The most common indication for PM implantation was complete atrio-ventricular block (76%). Single chamber (VVI) pacemakers formed 54% of implants, majority in males (64%). The indication for ICD implantation was almost equal for primary and secondary prevention. A single chamber ICD was most commonly implanted (65%). Coronary artery disease was the etiology in 58.5% of patients with ICD implants. CRT pacemakers were implanted mostly in patients with NYHA III/IV (82%), left ventricular ejection fraction <0.35 (88%) with CRT-P being most commonly used (57%).

Conclusion: A large proportion of CIED implants in India are PM for bradyarrhythmic indications, predominantly AV block. ICD's are implanted almost equally for primary and

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secondary prophylaxis. Most CRT devices are implanted for NYHA Class III. There is a male predominance for implantation of CIED.

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1. Introduction

Advances in the management of arrhythmias and heart failure have resulted in increasing use of cardiac implantable electronic devices (CIEDs)¹ that include permanent pacemakers (PMs), implantable cardioverter defibrillators (ICDs), and cardiac resynchronization therapy (CRT) pacemaker (CRT-P), or with defibrillator (CRT-D). To date, there have been no large, multi-center data available in the use of these devices in India. This survey was undertaken to understand the use, indications, demographics, clinical characteristics and co-morbidities of patients undergoing CIED implants. It is hoped that these initial data would help to improve upon building better databases of device implantations in India.

2. Methods

This survey was a joint initiative undertaken by the Indian Society of Electrocardiography (ISE) and the Indian Heart Rhythm Society (IHRS). The survey was conducted for 1 year,

from April 1, 2012 up to March 31, 2013. A device survey form was circulated amongst implanting cardiologists, who volunteered to be a part of the survey. The details collected included the type of implant (PM, ICD, CRT-P/D), type of device (single chamber/dual chamber) for PM and ICDs, indications for implantation, age, gender, New York Heart Association (NYHA) class, associated co-morbidities, left ventricular ejection fraction and whether it was a first implantation or replacement, and whether reused devices were used (Appendix 1). The forms were then submitted to an independent clinical research organization for analysis. Results of continuous measurements are presented as Mean \pm SD (Min–Max) and results of categorical measurements are presented as number and percentage (%).

3. Results

A total of 2117 survey forms were collected from 136 centers (Fig. 1) across India from implanting cardiologists.

Bradycardia pacemakers constituted the major bulk of the CIED implants in India. Amongst the 2117 survey forms,

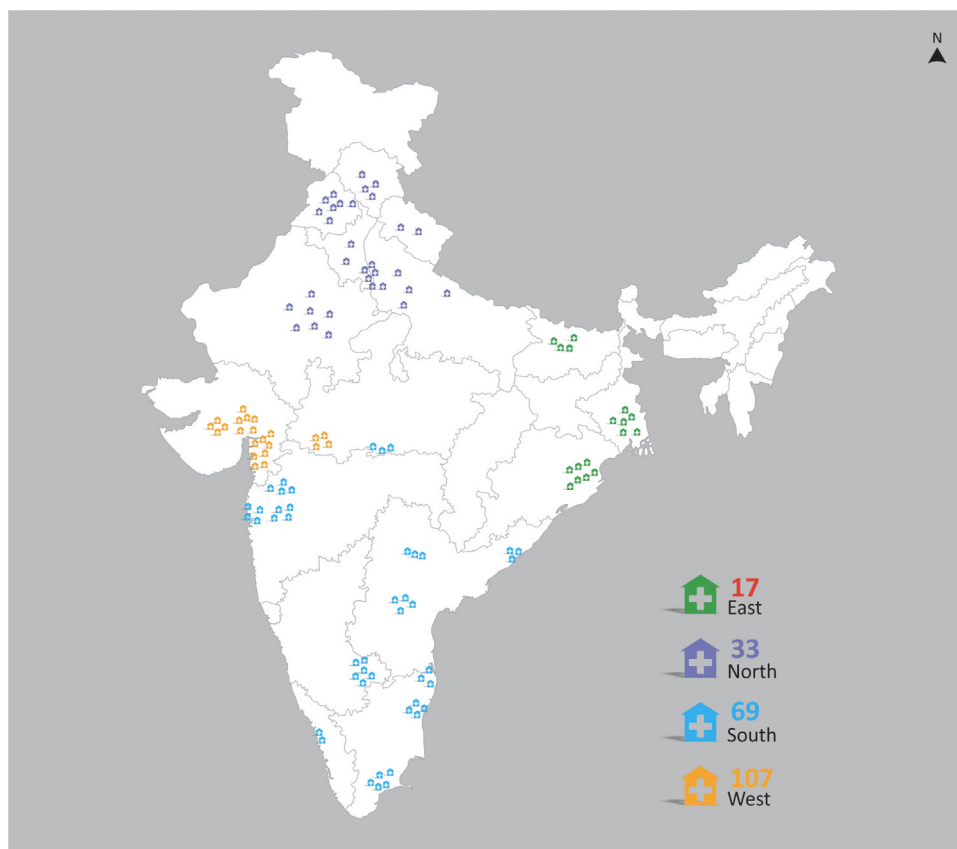


Fig. 1 – Geographic distribution of 136 participating centers across India in the device survey.

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