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Pain After Cardiac Rhythm Device Implantation: Fact or Myth?

Primary Author: Molly Vora Seven-Year Accelerated BA/MD, B.A. in Medical Sciences Minors in Psychology and Public Health 2014-2021 Boston University

Co-Authors: Christina Gullberg, BSc, MSc, RN; Jennifer Anne Wright, BSc, MSc, RN; Michelle Mucasey, Major in Health Science, Graduating 2018;

Molly Vora1, Michelle Mucasey1, Jennifer Anne Wright2 & Christina Gullberg2

1Boston University, Boston, Massachusetts, USA

2Pain Management Service Royal Brompton and Harefield NHS Foundation Trust, UK

Introduction

Initial service evaluation of pain after cardiac device insertion was undertaken within our institution in 2012 in response to increased referrals to the Chronic Pain Clinic with patients experiencing pain after implantation of pacemakers, defibrillators or resynchronising devices.

Underestimation and under-recognition of patients’ pain experience during the perioperative period for patients undergoing these procedures was highlighted. This was an interesting finding considering how commonly this procedure is performed at our institution (3,395 per annum at RBHT2) by the non-surgeon in day case setting3.

In an attempt to capture and consolidate evidence spanning several years 2013, 2015, 2016,4,5 we have continued this service improvement work gathering data at six-month follow up from a cohort of 49 patients5 after cardiac device insertions. Our previous audit5 had demonstrated significant pain intensity for patients with functional status impairment in the early postoperative period for this group (24-48 hours post-procedure).

The aim was to investigate any correlation between the impact of pre-existing or early postoperative pain against results obtained from a six-month time point as evidence related to this in day-case surgery is limited6,7. We also aimed to identify the prevalence of neuropathic pain at the six-month follow up to highlight this phenomenon to the Trust’s cardiologists.

Methods

Similar methodology was applied to this six-month follow up audit of a previous cohort. Patients were tracked via their unique audit number allocated during previous investigations, with approval gained via the Trust’s local governance committee.
Patients were tracked via the hospital electronic patient record system to ensure whether a follow-up were appropriate to undertake. Patients were then contacted via telephone and consented to participate. The Brief Pain Inventory (BPI) questionnaire was repeated at the following time points:

- Time point 1 (TP 1) Pre procedure
- Time point 2 (TP 2) Post procedure (2-20 hours)
- Time point 3 (TP 3) Post discharge (48 hours)
- Time point 4 (TP 4) Clinic (30 days)
- Time point 5 (TP 5) 6 months after device implantation

In addition patients were asked:

- Consumption of analgesic agents
- Doleur Neuropathic 4 (DN4) questionnaire to screen for neuropathic symptoms
- Any further comments they would like to make

Results

28 of the 49 patients in the original cohort were telephonically interviewed at 6 months after device implantation (2 patients died; 20 patients lost to follow-up).

Interestingly, patients are still reporting some level of pain at 6-8 months as compared to pre-operative score (TP1) p=0.0714.

Early trends suggest there is no relationship between preoperative pain (TP1) and the pain intensity experienced at TP 5 (six months) after device implantation, nor is there significance between the pain experience at TP 4 and TP5. Pain interference is significant higher in all seven key quality life indicators (general activity, mood, walking ability, normal work, relationships, sleep and enjoyment of life) at TP1 compared to TP4 and TP5 suggesting that the intensity of pain and interference has subsided in the interim period 30 days and six months.

There is a strong significance in the results demonstrating analgesic consumption is higher at TP 4 than TP 5 (p=0.0075) suggesting that patients require less (and virtually no) analgesia in the recovery period to six months.

Neuropathic symptoms identified with the use of a validated assessment tool (DN4) were reported by 6 of the 28 patients at six months with descriptions of tactile allodynia, hyperaesthesia and pin-prick pain sensations.

The most recent data is currently undergoing further statistical analysis and the final results, comparisons and correlations at all time points will be available for presentation at congress.

Conclusion

Despite a small cohort (n=28) results suggest pain after cardiac rhythm device implantation is acute, may be severe at times and is associate with impact on function and quality of life for up to six months after the procedure. There appears to be a significant number of patients reporting increased aberrant sensations consistent with neuropathic pain at the six-month follow up.
The findings will be used to raise awareness of early pain management interventions including neuropathic pain screening in this patient population. The intended outcome is to procure a change in clinical practice and thus improve outcomes for patients undergoing cardiac device implantation.

References:


2) Royal Brompton and Harefield NHS Foundation Trust Annual Review 2014-15


