Navigating challenges completing a QIP during COVID19: Pacing in post-TAVI patients

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Quality improvement projects (QIP) are commonly undertaken by junior doctors in training [1]. They contribute to change in a rapidly-evolving NHS [2]. Healthcare professionals are encouraged to participate in audit and QIP. COVID19 has caused a global reduction in research activity as clinical priorities led to the re-deployment of frontline clinicians [3]. The BCS Leadership Programme, which commenced in October 2020 for it's second year, provided training to navigate the challenges faced; leading to successful completion of a preliminary audit identifying risk factors in patients who have undergone transaortic valve implantation (TAVI) and subsequently required permanent pacing.

Objectives

> - To identify a suitable clinical QI project: recognising predictive risk factors for post-TAVI pacing
> - To build a team to participate in the project
> - To understand key leadership concepts in overcoming challenges in completing the project (including the impact of COVID19)

Methods

On arrival to RPH in 2019, I was involved in 3 cases of complete heart block following TAVI. I conducted a literature review and presented this in a joint meeting with EP consultant (CM) and TAVI operator (WD). The audit was filed and accepted by our trust audit department.

WD provided access to the TAVI database. We were joined by two medical students (AC, JL) who collected the data and a research SpR (JC) with experience in medical statistics.

Demographic and clinical (pre-, intra-, and post-procedural) data were collected from all patients who underwent TAVI at our centre from August 2017 to November 2020.

Patients with pre-existing PPMs were excluded from the study.

Predictive factors were selected through univariate analysis, and selected characteristics were incorporated into a multivariate binomial logistic regression model, in order to create a 30-day PPM risk-prediction model.

Results

In total, data from a total of 446 patients were analysed.

Of these, 40 (8.97%) received PPM implantation within 30 days of the procedure.

Multiple factors met significance at multivariate logistic regression analysis (see table) and include pre-TAVI RBBB (OR 6.62 [95% CI, 1.37-36.51]) intra-TAVI 3rd degree AV block (OR 12.80 [95% CI, 3.44-53.34])

Patient factor	Univariate OR (95% CI)	Multivariate OR (95% CI)
Age	1.04 (0.99-1.10)	0.97 (0.91-1.04)
Sex (Male)	0.87 (0.45-1.68)	1.26 (0.51-3.27)
Pre-TAVI LBBB	1.02 (0.34-2.51)	0.63 (0.15-2.22)
Pre-TAVI RBBB	5.53 (2.61-11.44)**	6.62 (1.37-36.51)*
Intra-TAVI AV block (1st degree)	6.99 (2.26-20.03)**	2.36 (0.58-9.22)
Intra-TAVI AV block (2nd degree)	5.29 (0.72-28.03)	5.86 (0.54-55.66)
Intra-TAVI AV block (3rd degree)	30.69 (11.75-87.37)**	12.80 (3.44-53.34)**
Intra-TAVI LBBB	4.93 (2.17-10.68)**	4.02 (1.28-12.53)*
Use of TPW	26.16 (11.70-66.85)**	8.58 (3.19-25.12)**
Post-TAVI LBBB	3.67 (1.88-7.15)**	7.84 (2.75-24.46)**
Post-TAVI RBBB	3.14 (1.37-6.72)*	0.93 (0.17-4.56)

OR, odds ratio; CI, confidence interval. *NB: age is a continuous variable, OR reflects the effect of + 1 year. *p<0.05, **p<0.001*

Five variables were incorporated into a multivariate logistic regression model which showed excellent discriminative ability to predict PPM implantation.

COVID19 interrupted our data collection as medical students were unable to attend onsite. Clinicians were re-deployed during the peaks of the pandemic admissions and TAVI procedures were also suspended in March 2020.

Key BCS Leadership skills

> - Key leadership concepts [4]
> - Understanding self to understand others: DISC personality tool [5]
> - Overcoming challenges and developing resilience [6]
> - Service development, commissioning, business case planning [7]
> - Building team effectiveness and managing difficult conversations [8]

Overcoming challenges with BCS Leadership skills

Having a vision - widening sphere of concern to sphere of influence [9]

Enabling new ways of working – team discussions were conducted via zoom/teams during social distancing measures

Sharing of work/skills – each team member developed their skill-set in producing this work (inspiring and coordinating the group, conducting literature review, analysing, writing, presenting data)

Developing resilience – COVID19 delayed data collection and the study was paused for several months

Managing difficult conversations – authorship contributions were discussed openly within the team and early, pre-COVID work was acknowledged in abstract submission

Conclusions

Five factors were identified to predict pacemaker implantation including: pre-TAVI RBBB, intra-TAVI AV block (3rd degree), intra-TAVI LBBB, use of TPW pacing and post-TAVI LBBB. Two scientific abstracts have been submitted to conferences.

Our teamwork and leadership will move this work further forwards with multicentre involvement for wider validation..

References

1. InvolvingJuniorDoctorsInQualityImprovement.pdf (health.org.uk)
2. guide-to-involving-junior-doctors-in-clinical-audit-and-quality-improvement.pdf (hqip.org.uk)
3. the-hidden-impact-of-covid_web-pdf.pdf (bma.org.uk)
4. NHS Leadership Academy 2013 Healthcare leadership model, p 3
5. Home - DISC Personality Testing
6. Practive
7. Prof Chris Ham. *Are We There Yet: Models of Medical Leadership and their Effectiveness*
8. Great Teams Are About Personalities, Not Just Skills (hbr.org)
9. Leading Strategic Projects Successfully | Judge Business School (economist.com)

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