Can residents really teach the consultants?

Introducing paediatric TIVA into a DGH with no pre-existing use: A pilot study

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Introduction

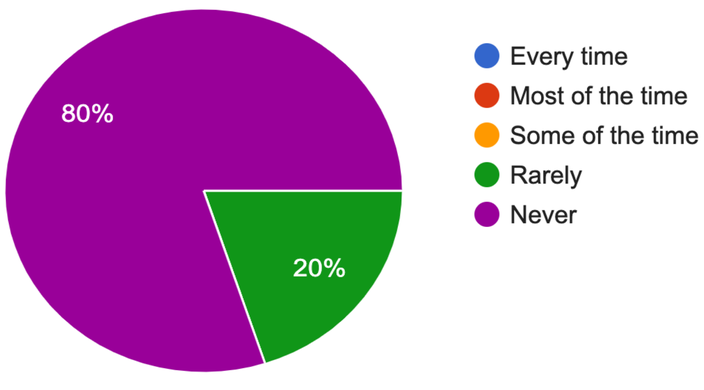
The use of TIVA in the paediatric population is well established and increasing.[1] However, at Whiston Hospital (a large DGH within the Mersey West Lancashire trust) no consultants currently employ this technique regularly in their paediatric practice, despite frequent paediatric cases, thus demonstrating a clear need for an educational intervention.

Having recently completed stage 2 paediatrics at a tertiary children's hospital, I was armed with the appropriate TIVA skills and knowledge required to undertake a QIP to educate consultants in paediatric TIVA implementation, aiming to build confidence and expertise in the technique, in a reversal of the usual "consultant teaching resident doctor" structure.

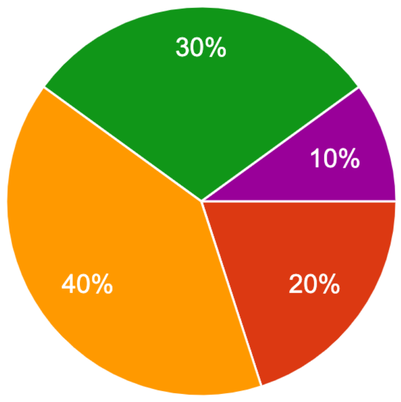
Methodology

Baseline survey:
A baseline survey of interested consultants (10) revealed that 8/10 (80%) of anaesthetists never used TIVA in children, compared to 1/10 (10%) who never used it in adults.

How often do you use TIVA in children?

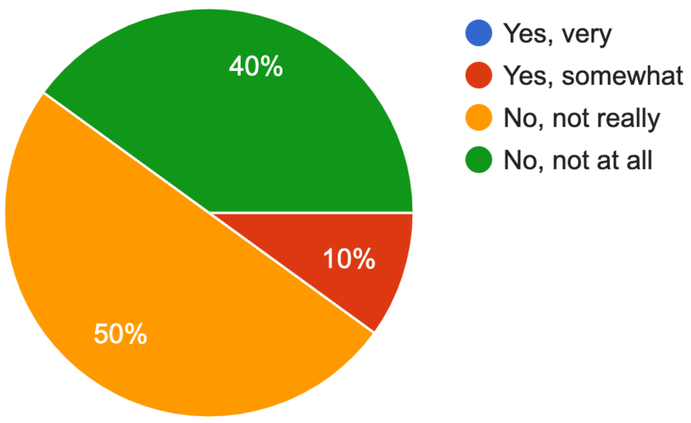


How often do you use TIVA in adults?

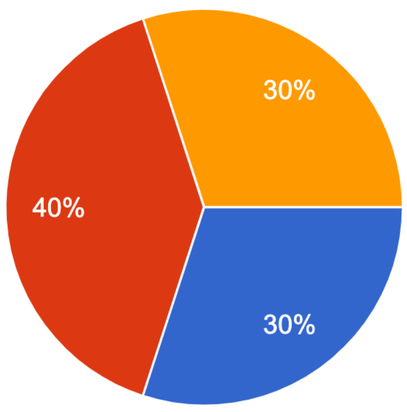


Interestingly, 9/10 (90%) reported lacking confidence in paediatric TIVA, whereas only 3/10 (30%) felt unconfident with TIVA in adults.

Do you feel confident in the use of TIVA in children?



Do you feel confident in the use of TIVA in adults?



Following these striking results, I collaborated with one consultant to develop an educational programme focused on expanding their paediatric TIVA practice.

List choice:
We identified a regular paediatric ophthalmology list as an ideal learning environment, owing to its short, high-turnover cases.

Over six weeks, we administered TIVA to all patients (age range 4-15 years, n=15), with all of the patients undergoing squint surgery.

Results

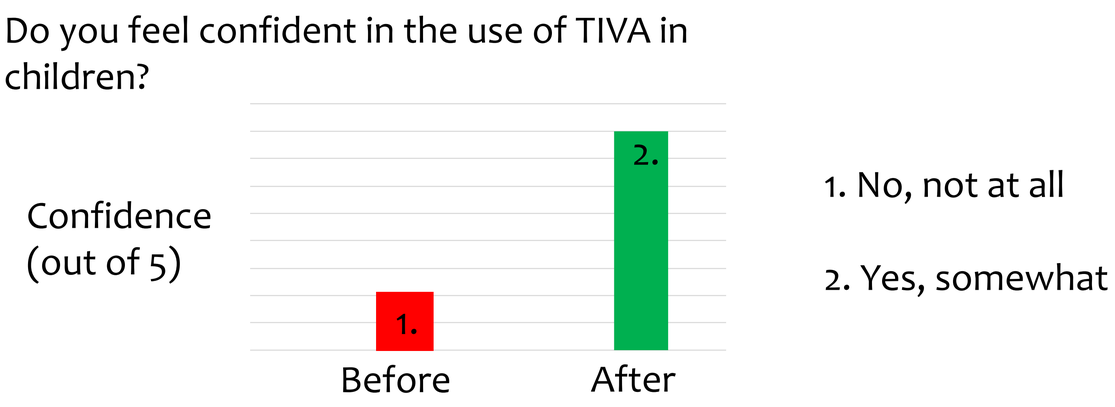
Given the consultant's limited initial experience, there was substantial scope for educational development and confidence building. Each case was evaluated for surgical conditions and recovery time, allowing for continuous technique refinement.

Challenges:
A key challenge was access to TCI pumps with appropriate models. Initially, only the Minto remifentanil model was available, necessitating manual infusions for patients below minimum age (12) and weight (30kg) requirements.

We observed superior surgical conditions when later implementing the Eleveld[2] remifentanil model compared to manual infusions.

Confidence improvement:
Post-intervention, the consultant's self-reported confidence improved from "not at all" to "somewhat" confident, with commitment to ongoing paediatric TIVA use. This success suggests potential for department-wide expansion of paediatric TIVA practice.

Do you feel confident in the use of TIVA in children?



Discussion

Due to rotational training resident doctors learn specialist skills, particularly within SIA modules, which can then be transferred back "up the chain" to non-specialist consultants in DGHs.

The increase in confidence in the skill meant that the consultant would continue to use TIVA in appropriate cases, and shows the scope for further introduction across interested members of the department.

This model of "residents teaching consultants" could be utilised for a number of skills, including newer regional blocks, or USS guided spinals – common within obstetric practice, and completely applicable to the patient with raised BMI in non-obstetric settings.

While adopting novel techniques in unfamiliar territory can be daunting, this project demonstrates that targeted training and support make skill acquisition achievable. Such professional development is not merely possible but essential for maintaining clinical excellence and patient safety.

Acknowledgements/References

Dr Janet Slee consultant anaesthetist, Mr Assheton & Mr Marsh consultant ophthalmologists

1. Goh AN, Bagshaw O, Courtman S. "A follow-up survey of total intravenous anaesthesia usage in children in the U.K. and Ireland." Paediatric Anaesthesia 2019 Feb; 29(2):180-185.
2. Short TG, Campbell D, Egan TD. "Increasing the utility of target-controlled infusions: one model to rule them all." BJA 2018 May; 120(5): 887-890.