Assessing the approach to neuromuscular blockade holidays on the PICU

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Introduction

Continuous neuromuscular blockade agents are used on PICU for a variety of indications.

Prolonged use is known to have long-term effects such as muscle weakness, and so an infusion break (drug 'holiday') is given to patients when appropriate to help reduce these effects.

The aim of this study is to explore the variation in practice and patient response to neuromuscular blockade holidays in a single centre.

Methods

Patients having vecuronium holidays were identified each day. Data on total number of patients on vecuronium each day and total number of patients on the unit were also collected.

The bedside nurse for each patient with a planned holiday was asked:

(i) the signs they noted which showed the child recovering from the drug's effects

(ii) the length of the drug holiday

(iii) indications for the drug

(iv) dose before and after the holiday.

Results

Figure 1

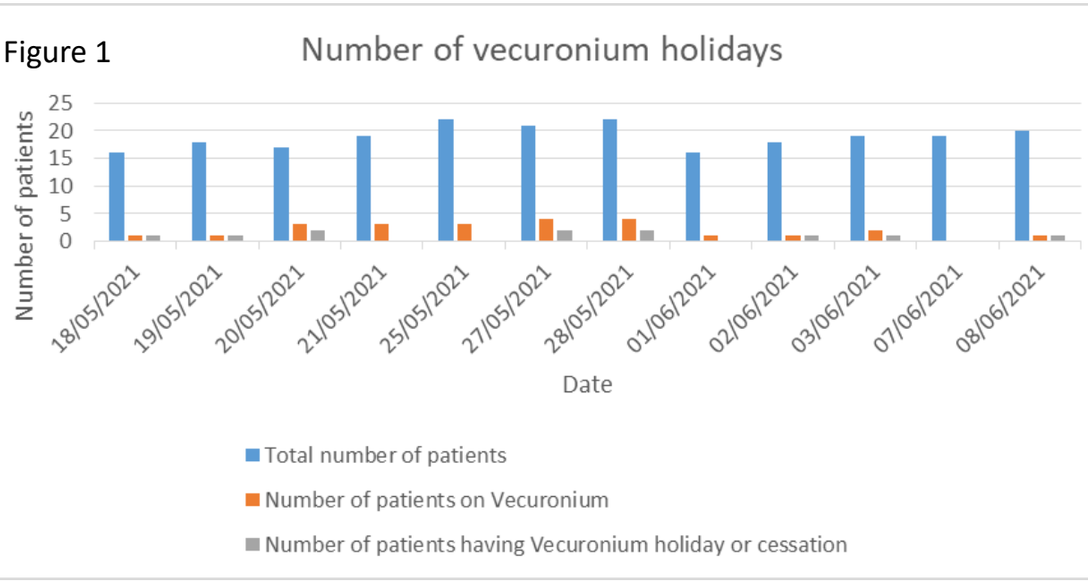


Figure 1 Data was collected over 19 days in a single non-cardiac PICU. In total, 24/227 (10.6%) of bed days involved neuromuscular blockade and 11/24 (45.8%) of those involved holidays (in 3 children)

Figure 2

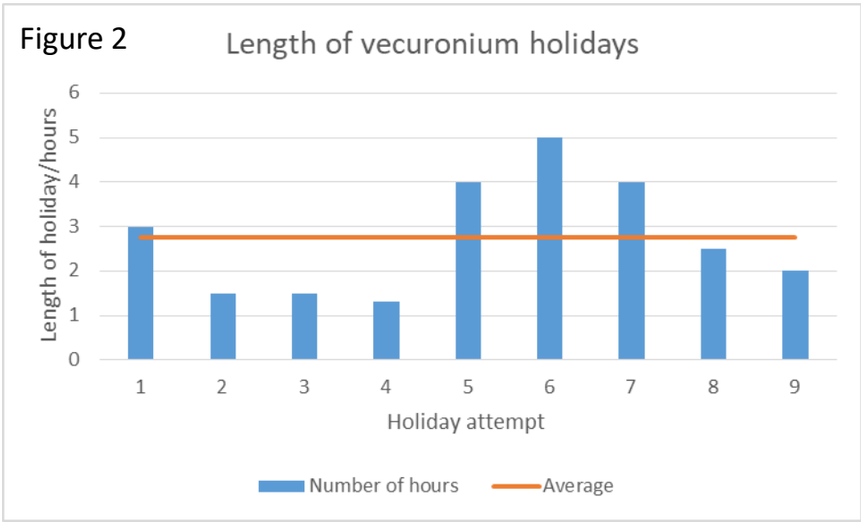


Figure 2 The median duration of holiday was 2.8 hours

Figure 3

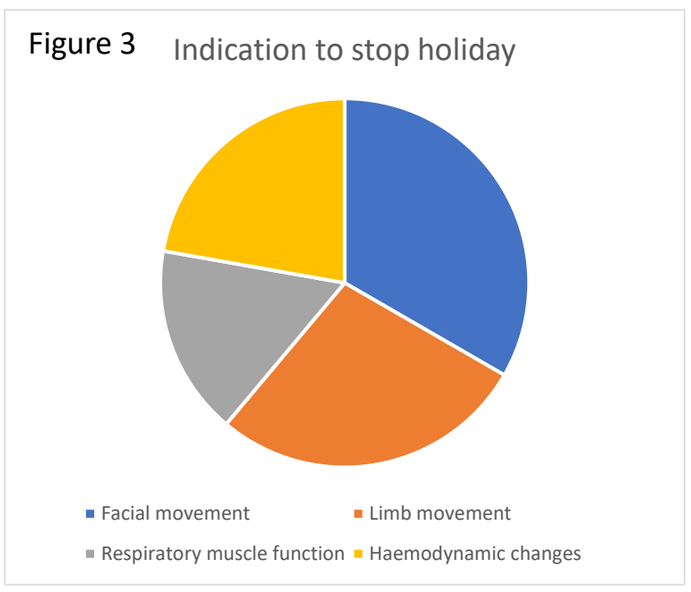
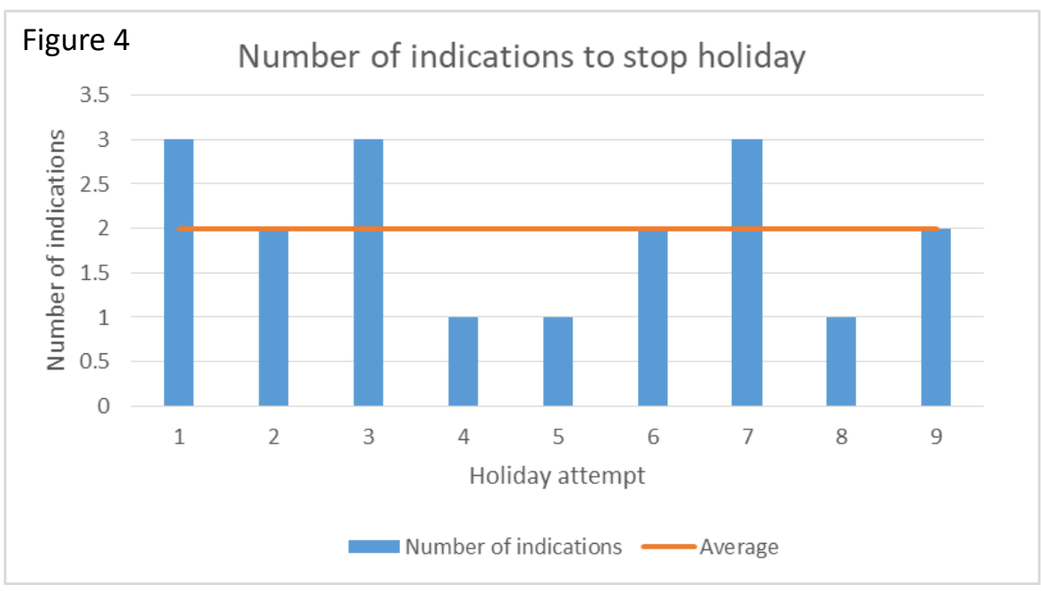


Figure 4



Vecuronium was restarted in all cases following clinical signs rather than monitoring (e.g. train-of-four). The clinical signs that ended the holiday varied and have been split into 4 groups: limb movement, facial movement, haemodynamic changes and respiratory muscle function (**Figure 3**). The most common sign observed was facial movement, and the least common was respiratory muscle function. There was often more than one sign in each patient, with the average being 2 (**Figure 4**).

Conclusions

There is variation in patient response to, and staff interpretation of, neuromuscular blockade holidays. Protocolised care, such as introducing templates for monitoring and documenting the holidays may improve standardisation. However, the effects of neuromuscular blockade holidays and effects of variation in monitoring on outcomes are not known and further research is required.

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