Prospective Systems Probing: An evaluation of the management of local anaesthetic toxicity outside the theatre environment, using in-situ simulation.

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Limited exposure to rare events can result in a lack of skills to manage them. Simulation has the potential to fill this educational void [1].

At the Royal Hospital for Sick Children, Edinburgh we propose a mechanism for probing and evaluating current systems in place for managing rare emergencies using high fidelity simulation.

A multi-disciplinary team training session (Paediatric Emergency Team Training) was run, simulating a case of Local Anaesthetic (LA) Toxicity. LA toxicity is a rare but potentially life threatening emergency. Using high fidelity simulation the on-call team were exposed to this emergency to explore how they would respond. Self reported areas for improvement were identified during a facilitated debrief and by using feedback forms. Self reported knowledge gaps were in the following areas: recognition and management of LA toxicity, awareness of the current emergency protocol for management of LA toxicity and location of LipidRescue™ (Intralipid).

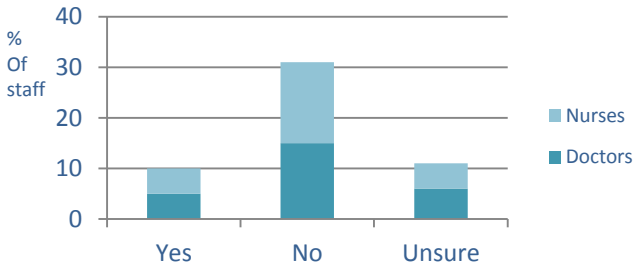
Patients with epidurals in-situ are managed in PICU and the ward environment. Although LA toxicity is a rare event, epidurals are common. There are also plans to introduce a continuous peripheral nerve block service in the ward areas. Following identification of a potential knowledge gap in the management of LA toxicity, further information was sought. An anonymous questionnaire was given to staff involved in managing patients with epidurals, including nursing and medical staff and importantly to members of the paediatric emergency team. Staff were asked if they had undertaken any training in diagnosis and management of LA toxicity and use of LipidRescue™.

Results:
A total of 52 members of medical staff were surveyed. This included 26 medical staff and 26 nursing staff.

Of the staff questioned only 30% of the medical doctors and 23% of the nursing staff had ever received any training or education in the diagnosis or management of LA toxicity.

Questions relating to recognition of signs and symptoms of LA toxicity revealed that 70% of staff did NOT know the signs and symptoms or were unsure of these. It was also clear that staff did not feel confident in their ability to manage patients with LA toxicity, and only 38% were aware of the hospital protocol.

Do you feel able or comfortable managing a patient with LA toxicity



We asked staff if they had knowledge about the use of LipidRescue™ in treating LA toxicity and the results identified that 62% of staff did know. However only 35% of staff knew the location of LipidRescue™ in their clinical areas.

Finally staff were asked whether they would benefit from further training in the management of LA toxicity and the overwhelming majority did: 96%.

This survey identified a clear need for further training. We are underway to implement a needs based training package. Once training has been completed we will evaluate its effectiveness by running a follow up in-situ simulation of LA toxicity.

This is the beginning of a new approach to evaluate and improve knowledge and skills within our hospital, with potential for improvements in patient safety.