



Heparinised Saline or Normal Saline to maintain arterial line patency? Which is backed by evidence?

J.Ackland, Paediatric Critical Care Sister

Background

A proposal to change practice in Paediatric Critical Care (PCC) at Royal Manchester Children's Hospital (RMCH) to use normal saline to maintain arterial line patency was made, this would standardise care across MFT and follows Adult ICU practice.

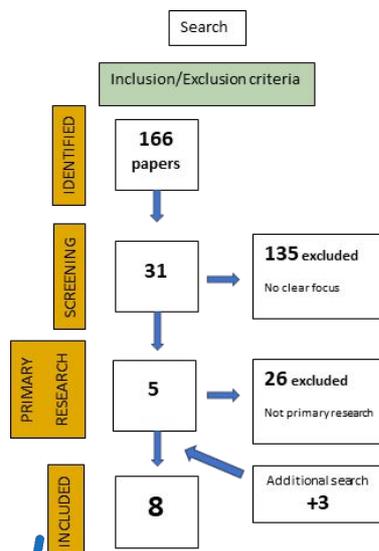
There is currently no local guideline for insertion/management of arterial lines in use so we consulted the literature to support either current practice or the change in practice.

Heparinised saline costs were rising due to an expected shortage during the Covid 19 pandemic, therefore we needed to see a clear benefit for hepsal to offset this cost.

Methods

A scoping review was carried out to map a body of literature on arterial line management, with relevance to time (<20years), location (adult or paediatric critical care), source (peer-reviewed or grey literature) and origin (healthcare setting or academic field).

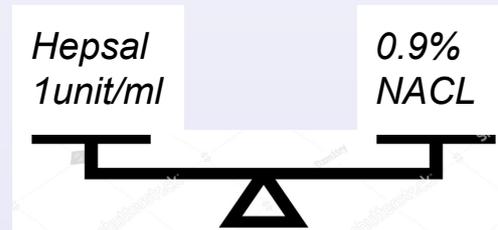
Using established networks for Paediatric Advanced Care Practitioners (ACP) working in PICUs/PCCs in the UK, we explored what guidance was currently being used in other units with additional call-outs on social media.



Results

8 primary research papers were identified, 5 of these were randomised controlled trials, 4 of which supported the null hypothesis:

There is no difference in maintaining effectiveness of arterial lines whether using normal or heparinised saline.



No primary research literature was identified in relation to paediatrics.

3 PICUs/PCCs reported that they had already changed practice but not based on any paediatric research.

Conclusions

Based on the limited evidence, it was confirmed that the change to practice in RMCH would go ahead. A guideline has been written for arterial line insertion and management, which is currently being ratified.

An educational strategy was employed to present this proposed change in practice and a prospective audit is now being undertaken to identify and report any adverse events.

Future Work

Due to lack of evidence in paediatrics and multifactorial issues, clinical findings following this change may support the need for future in depth audits and research on this subject.

References

Everson, M., Webber, L., Penfold, C., Shah, S., & Freshwater-Turner, D. (2016). Finding a solution: heparinised saline versus normal saline in the maintenance of invasive arterial lines in intensive care. *Journal of the Intensive Care Society*, 17(4), 284-289.

Robertson-Malt, S., Malt, G. N., Farquhar, V., & Greer, W. (2014). Heparin versus normal saline for patency of arterial lines. *Cochrane Database of Systematic Reviews*, (5).

