School of Nursing, Paramedicine and Healthcare Sciences

Topical adrenaline (epinephrine) as a haemostatic agent and its place in paramedic settings: a systematic review

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Background

There is renewed interest in improving haemostatic interventions to prevent morbidity and mortality in all clinical settings, including paramedicine. This Honours thesis was a systematic review that investigated the suitability of topical adrenaline (TA) as a haemostatic agent in the paramedic setting through its vasoconstrictive effects on α_1 receptors in blood vessels. The efficacy, application techniques and safety risks were analysed in comparison to other haemostatic interventions found in the included literature.

Results

Database search return = 497
Unique records screened (title and abstract) = 326
Full text records screened = 55
Studies included = 25
Studies in paramedic setting = 0

Methods

Databases: CINAHL, Cochrane Database, Emcare, MEDLINE, PubMED, Scopus.

Search terms: adrenaline, epinephrine, topical treatment, topical administration, h?emorrhage, trauma, wound, injur*, epistaxis, bleed*, laceration, tear, avulsion, abrasion.

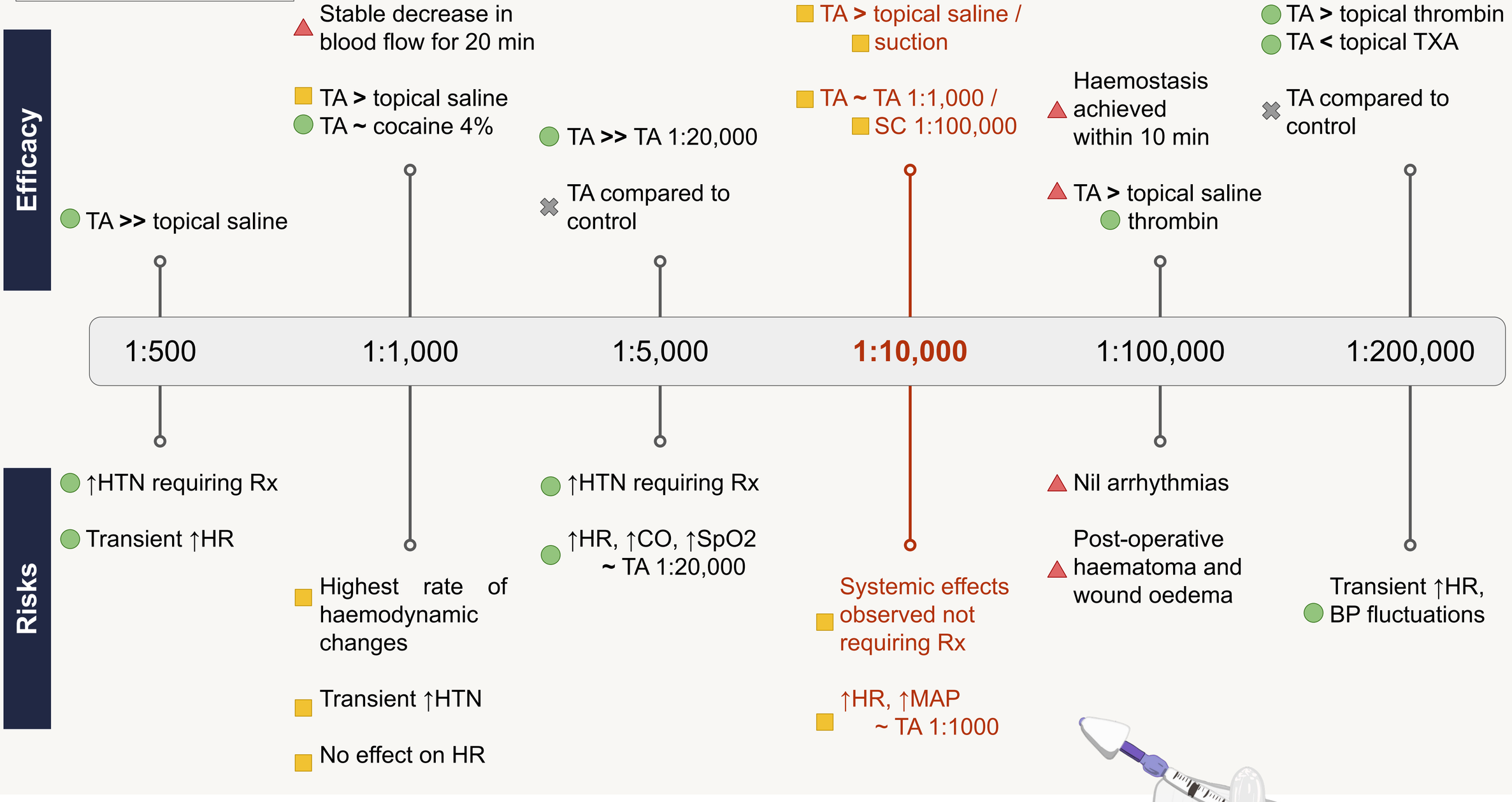
Inclusion criteria: external bleeding or epistaxis, adrenaline as a topical vasoconstrictor, haemostasis measured qualitatively or quantitatively, all study types.

Exclusion criteria: internal bleeding, concurrent use of other topical vasoconstrictors, published prior to 1992.

Analysis: Critical appraisal was completed using Joanna Briggs Institute Checklists, then data were extracted and organised according to efficacy, administration and clinical risks.

QUALITY OF EVIDENCE
- High
- Moderate
- Low
- Missing data

KEY
>> significantly more effective than | **~** comparable to | **Rx** rescue drug interventions
> more effective than | **<** less effective than | ↑ increase



Conclusion and impact

Topical adrenaline (TA) is safe and effective for haemostasis according to moderate-quality evidence. There is value in introducing TA as an intervention in Australian paramedic settings using 1:10,000-soaked gauze with direct pressure onto bleeding sites or via mucosal atomising devices for epistaxis. Further high-quality research in the paramedic setting would build clarity surrounding recent evidence. Research opportunities include analysing different application techniques of TA, other routes of administering adrenaline, or TA versus TXA in achieving haemostasis within the paramedic context.