AUSTRALASIAN COLLEGE FOR EMERGENCY MEDICINE

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6 December 2018

Coroner Caitlin English
65 Kavanagh Street
SOUTHBANK VIC 3006

By email: cpuresponses@cornonerscourt.vic.gov.au

Dear Coroner English

Court reference: COR 2015 000048

Re: Recommendation 2 - that the Australasian College for Emergency Medicine (ACEM) circulate this Finding to ACEM Fellows to highlight the evidence, guidelines and potential issues in the management of snake bite**.**

(c) the Coroner's recommendation is under consideration.

Thank you for highlighting to ACEM the conflicting evidence and medical opinion regarding current clinical guidelines for the diagnosis and treatment of snakebite in Australia. We share your concern about two deaths in Victoria in a short space of time.

The following letter outlines the process that ACEM has pursued following your report in response to the death of Joy Zerafa, the timeframe for a decision and the contact details for the person responsible for consideration of the recommendation.

On the 22 October, the College received the report from the Coroner of the investigation into the death of [redacted]. We note that this report had the same recommendation to ACEM as the investigation into the death of Shane K Tatti, with reference number 2014 005696. ACEM's response to the investigation into the death of [redacted] was therefore incorporated into our response to the finding and recommendation arising from the death of Shane K Tatti.

Following receipt of the Coroner's Report into the death of Shane K Tatti, dated 6 September, in consultation with the President and the Chair of the College's Quality Management Subcommittee, the College identified a number of leading experts in toxicology who are also Fellows of the College to review the Coroner's recommendation and provide information and advice to ACEM's Quality Management Subcommittee. The Quality Management Subcommittee is responsible for reviewing Findings and recommendations from Coroners across Australia and New Zealand and providing advice on matters concerning quality and safety in emergency medicine.

The College first sought advice from the following two Fellows

1. Doctor Shaun Green, Clinical Toxicologist and Emergency Medicine Physician, Medical Director Victorian Poisons Information Centre and Director Austin Toxicology Service. Note that Dr Green is also an expert member of the group convened by the Emergency Care Clinical Network in 2013 and 2017 to produce the current Victorian Snakebite Management Guidelines.
2. Professor Andis Graudins, Director, Monash Clinical Toxicology Service, Clinical Toxicology Training at Monash Health and Director of the Monash Emergency Research Collaborative.

The College received a written response in the form of a background briefing dated 18 October (attachment 1) for the Quality Management Subcommittee.

The Subcommittee met on Friday 26 October by teleconference and discussed the evidence, guidelines and potential issues in the management of snakebite, for communication to Fellows and trainees of the College.

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The Subcommittee considered the following papers:

- The Coroner's Findings and recommendations following investigation into the death of Shane Tatti, with reference number 2014 005696, and into the death of [redacted], with reference number 2015 000048.
- The written report provided by Dr Shaun Green and Professor Andis Graudins, dated 18 October 2018
- Safer Care Victoria's *Management of snakebite* (Victoria) flowchart, *Suspected snakebite clinical pathway (Victoria)* and *Snakebite envenomation clinical pathway (Victoria*).
- Isbister et al 2012 'Tiger snake (Notechis spp) envenoming: Australian Snakebite Project (ASP-13)', and Isbister et al 2013 'Snakebite in Australia: a practical approach to diagnosis and treatment', both published in the *Medical Journal of Australia*.

Dr Green attended the meeting to answer questions from the Subcommittee.

The Quality Management Subcommittee:

- Noted that Safer Care Victoria has recently reviewed its guidance documents on snakebite and antivenom at the Coroner's request, and concluded that no change was required;
- Noted Dr Green's advice that there is ongoing debate in the toxicology community as to antivenom dosages and that the population of snakebite patients is too small to draw statistical conclusions;
- Discussed the Findings and recommendation from the Coroner's investigations; and
- Queried the current state of evidence with regard to dosage of antivenom, the risks of anaphylaxis and current clinical practice in New South Wales.

Following discussion at the meeting, Dr Green advised that

- There are no further findings from data collected by the Australian Snakebite Project, 2005–2015 that suggest that there needs to be a change in the current antivenom dosing for snakebite in Victoria.
- It is very difficult to quantify the risk of anaphylaxis between a patient who receives two versus one vial of monovalent antivenom. There is not enough data to make any conclusions.
- ACEM should approach Dr Michael Downes, president of the Toxicology And Poisons Network Australasia (TAPNA), Emergency Physician and Clinical Toxicologist at Calvary Mater in Newcastle and Clinical Senior Lecturer at the University of Newcastle, for a consensus opinion from the toxicology community in Australia on the clinical management of snake bite.

TAPNA have responded to ACEM's request for a consensus opinion (attachment 2) noting that the expert medical group are in agreement that the current recommendations should remain in place and that expert consultation from the poison centre in all cases of envenoming will ensure that any exceptional or unusual factors get due consideration. Note also that TAPNA have advised that their March meeting will include a morbidity and mortality review dedicated to these two cases. ACEM will ensure that a College representative attends this meeting.

Following completion of the morbidity and mortality review, ACEM will advise Fellows and Trainees of the College about the deaths by complications from snakebite in 2014 and 2015 in Victoria in spite of compliance with current clinical guidelines, and the reminder to consult the poisons information centre for management of snake bite cases.

Please contact Nicola Ballenden, Executive Director Policy, Research and Advocacy (t: 03 9320 0444, e: Nicola.Ballenden@acem.org.au) if you require further information.

Yours sincerely

Simon Judkins
President

Carmel Crock
Chair Quality Management Subcommittee

Attachments

1. S Green *Background Briefing* 18 October
2. M A Downes *Statement on the emergency department management of snake envenoming in Victoria* 4 December 2018

Report for the ACEM Quality Management Subcommittee

Management of Snakebite in Victoria: Current Issues

This report has been written in response to the Coroners findings and request regarding the death of a 26-year-old male who was bitten by a Tiger snake in 2014.

Venomous snakes in Victoria include brown and tiger snake. In 2013 an expert group was convened by the Emergency Care Clinical Network (formally ECICN) to develop a guideline for the management of snakebite in Victoria. Based on current evidence at the time this guideline recommended that patients with clinical or laboratory evidence of envenomation receive one vial of tiger snake antivenom and one vial of brown snake antivenom. In addition, the guideline recommended concurrent consultation with a clinical toxicologist, accessed through the state poisons centre (Victorian Poisons Information Centre).

In 2017 the group was reconvened to consider recommendations in regards to stocking of antivenom throughout Victoria.

In 2014 an adult male was bitten by a tiger snake and received antivenom according to the state snakebite guidelines, but subsequently died. A small amount of free venom was found in samples obtained from this patient following treatment with one vial of tiger snake antivenom. The coroner's report mentioned the state snakebite guideline and noted that antivenom dosing recommendations had remained unchanged since the guideline's creation in 2013. This led to the expert group reconvening and meeting on 18 October 2018. As a result of the meeting a new addition of the guidelines will be written in the coming weeks. The conclusions and outcomes of the meeting have not been formally documented and disseminated at the time that this report was written, and so the following are the solely the authors interpretation of the meetings outcomes:

- Current recommendations in regards to initial antivenom dosing in Victoria as specified within the Management of Snakebite in Victoria guideline will remain unchanged.
- The need for early consultation with a clinical toxicologist will be further emphasised within the guideline.
- A statement acknowledging the difficulties in the identification of severely envenomed patients, and subsequent optimal antivenom dosing will be included.

The following points may assist the Quality Management Subcommittee:

1. Antivenom is most likely to be beneficial if administered within a few hours of envenomation. The majority of individuals in Victoria who present with suspected snakebite are not envenomed. Administration of antivenom to all patients presenting with suspected snakebite carries the risk of unnecessary harm secondary to antivenom induced anaphylaxis.

2. There are no validated clinical or laboratory markers capable of indicating patients who are severely envenomed, and therefore who may theoretically derive benefit from additional doses of antivenom. There is no published evidence demonstrating

that delayed administration of additional antivenom in patients who develop severe envenoming syndromes is beneficial.

3. The Australian Snakebite Project (ASP) found that one vial of tiger snake antivenom was sufficient to bind all circulating venom in a series of patients with tiger snake envenoming.

4. There is a possibility as with any disease that there are cases that represent a significant difference from the population norm following envenomation i.e. they are "outliers". Currently we are unable to identify those patients who may fall under this category at the time they present, and it is unknown if they would benefit from additional doses of antivenom.

5. Management of Tiger and Brown snake envenoming in Victoria as detailed in the state guideline is in line with all other Australian states.

Dated 18th October 2018

Dr Shaun Greene MBChB, MSc, FACEM, FACMT
Emergency Physician and Clinical Toxicologist
Medical Director VPIC

www.tapna.org.au

Statement on the emergency department management of snake envenoming in Victoria

TAPNA (Toxicology And Poisons Network Australasia) incorporated , is a collaboration of healthcare professionals within Australia and New Zealand with expertise in the management of poisoned and envenomed patients. It's membership contains specialist clinical toxicologists as well as doctors undertaking specialist training. The group also contains a number of specialists in poisons information (SPIs), most commonly pharmacists who have undertaken specific training to allow dispensation of expert knowledge regarding medications and toxins.

Within Australia there are 4 poisons information centres . At any time of day at least 1 of these centres is open and healthcare professionals can call from any location within Australia on 13-11-26 and get expert consultation from a SPI and where required a specialist clinical toxicologist. The rotational system ,whilst ensuring that expert consultation is available 24 hours per day, also means that a call originating in Victoria may get phoned through to a SPI in New South Wales whom in turn may refer the case to a clinical toxicologist based in Queensland or Western Australia.

This statement is written in response to a request from the Australasian college for emergency medicine (ACEM) for a consensus view from TAPNA in relation to the emergency department management of snakebite in Victoria. This request was made in the context of 2 deaths in Victoria related to tiger snake envenoming.

Over the last 13 years the Australian snakebite project(ASP) has provided a substantial amount of high quality data with regard to managing antivenom and the use of antivenom. The evidence that has emerged from ASP very strongly suggests that 1 vial of monovalent antivenom will bind all of the circulating venom from that particular snake group. In some circumstances the clinical picture is not sufficiently clear to narrow down to one specific monovalent antivenom. An example of this would be a snakebite victim with a venom induced consumption coagulopathy (VICC) type picture in Victoria. Thus in such circumstances, Australian specialist clinical toxicologists would recommend 1 vial of brown snake antivenom and 1 vial of tiger snake antivenom as both of these snake groups can cause VICC and are found in Victoria. The substantive data from ASP has resulted in a treatment guideline being published in the medical journal of Australia and available as an open access article https://www.mja.com.au/journal/2013/199/11/snakebite-australia-practical-approach-diagnosis-and-treatment

The above article has subsequently formed the basis for management guidelines in different states including Victoria.

www.tapna.org.au

Statement on the emergency department management of snake envenoming in Victoria

The coronial reports from the tiger snake bite deaths in Victoria were made available to all toxicology consultants within TAPNA Inc. as well as SPI representatives from all 4 poison centres in Australia. The current guidelines for snakebite/envenoming management within Victoria were also included. The group were consulted specifically about the current guideline and the antivenom dosing recommendations in particular. The overwhelming consensus view is that TAPNA do not support any change to the current antivenom dosing recommendations.

There was also feedback from the group recommending and reinforcing that all healthcare professionals dealing with a case of envenoming should in all cases call the poison centre as soon as practically possible to enable expert consultation and ensure appropriate management. One of the issues raised within the coronial reports was that of discrepancies among experts with regard to antivenom dosing recommendations.

The consensus view of TAPNA is that this is not the case and in fact the expert medical group are in agreement that the current recommendations should remain in place. It is also worth noting that on receiving an enquiry regarding an envenomed patient it is mandatory for a SPI to refer the case to a specialist clinical toxicologist in all cases.

One issue that was raised from within the 2 cases was the exceptional type case which might require antivenom dosing beyond the current recommendation. This issue is difficult to definitively address as we currently have no discriminating factors, clinical or otherwise, to distinguish a case where an antivenom dosing regimen beyond the current recommendation might be of benefit. However, we would again reinforce that expert consultation from the poison centre in all cases of envenoming will ensure that any exceptional or unusual factors get due consideration.

TAPNA would be more than happy to provide further input if required.

Dr Michael A Downes MB ChB FACEM

Emergency physician/Clinical Toxicologist

President, TAPNA