

## JOURNAL ROUND-UP

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### Investigating the role of vasopressin in anaphylactic shock

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**Dewachter P, Raeth-Fries I, Jouan-Hureau V, et al. A comparison of epinephrine only, arginine vasopressin only, and epinephrine followed by arginine vasopressin on the survival rate in a rat model of anaphylactic shock. *Anesthesiology* 2007;106:977-83.**

Parenterally-administered adrenaline (epinephrine) is the internationally recommended treatment of choice in anaphylaxis,<sup>1,2</sup> but despite its prompt use some people still experience poor outcomes.<sup>3</sup> There is, therefore, a need to investigate novel treatment options, but such studies are methodologically complex and ethically fraught in the context of the management of an acute potentially life-threatening disorder.<sup>4</sup> Animal studies can prove very helpful in situations such as this, as has been the case, for example, with research investigating the optimum dose and timing of adrenaline in canine models of anaphylaxis.<sup>5,6</sup>

Dewachter and colleagues' new study in rats suggests that the combination of adrenaline and arginine vasopressin (AVP) may improve outcomes in anaphylactic shock, thus providing early evidence of a potentially new treatment approach.<sup>7</sup> The use of vasopressin has previously been proposed, but the evidence base in support of its use has been weak.<sup>8-11</sup> In this study, the authors randomly allocated Brown Norway rats into four groups (n=6 in each group). All rats were anaesthetised and anaphylactic shock was induced. The rats then received treatment five minutes after the onset of anaphylactic shock with either: (i) saline ('no treatment' group); (ii) two boluses of adrenaline followed by continuous infusion (adrenaline group); (iii) AVP bolus followed by continuous infusion (AVP group); or (iv) adrenaline bolus followed by AVP continuous infusion (adrenaline+AVP group). The main outcome measure of interest was survival rate.

The authors found that in the 'no treatment' and AVP groups the survival rate was 0%. In the adrenaline group,

survival rate was 84%. In the adrenaline+AVP group, survival was 100%. These findings suggest that AVP used in isolation is unlikely to have a therapeutic role in the emergency management of anaphylaxis, but it could have a useful role to play if used in combination with adrenaline, although the numbers of rats studied were too small to conclude this with any reliability.

Future work now needs to replicate these findings in a larger study so as to ascertain more conclusively whether adding AVP to adrenaline offers any therapeutic advantage. If confirmed, this work should also aim to elucidate the causal mechanism through which this combination of adrenaline and AVP may be interacting to reverse the manifestations of anaphylactic shock.

#### Conflict of interest declaration

Professor Aziz Sheikh is an Assistant Editor of the *PCRJ*, but was not involved in the editorial review of, nor the decision to publish, this article.

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