Colloids versus crystalloids for fluid resuscitation in Dengue fever patients (Review)

There are no effective treatments available for Dengue fever. Intervention remains largely supportive with fluid resuscitation for hypovolemia being the mainstay of the medical management of critically ill dengue patients. Clinicians have a range of options for the resuscitation fluid, including colloid and crystalloid solutions.

The purpose of the systematic review was to identify and synthesise the available evidence to assess the effect on mortality of using colloids compared to crystalloids for fluid resuscitation in patients with Dengue fever.

1. Assessment of efficacy
   a. Have all relevant studies on efficacy been included
      Yes X No (if no, please provide reference and information)
      Five trials evaluating the effects of colloids versus crystalloids were found. Of these, two had high risk of bias for allocation concealment.

   b. Summarize the data on efficacy, in comparison to what is listed in EML where applicable (limit to 2 to 3 sentences)
      Overall, the quality of the evidence for the effect of colloids versus crystalloids for fluid resuscitation in Dengue patients included in the systematic review was low. The only study contributing with mortality events was at high risk of bias for sequence generation and allocation concealment. Furthermore, the effect estimate was imprecise due to the low number of events. All of the included studies were underpowered to make any reliable assessment of the effect of colloids compared to crystalloids on mortality in Dengue patients.

      The review found no evidence that resuscitation with colloids reduced the risk of death compared to crystalloids.

   c. Please provide any additional relevant information with reference

2. Assessment of safety
   a. Have all relevant studies on safety been included
      Yes X No (if no, please provide reference and information)

   b. Summarize the data on safety, in comparison to what is listed in EML where applicable (limit to 2 to 3 sentences)
      No deaths were reported in the three studies that compared dextran with crystalloids.

      No deaths were reported in the two studies that compared gelatin with crystalloids.

   c. Please provide any additional relevant information with reference
3. Assessment of cost and availability
a. Have all relevant data on safety provided
   Yes X  No (if no, please provide reference and information)
b. Summarize the data on cost and cost effectiveness, in comparison to what is listed in EML where applicable (limit to 2 to 3 sentences)

Volume replacement with colloids is considerably more expensive than with crystalloids. The International Drug Price Indicator Guide shows that the supplier median price for Dextran 70 (0.0106 US$/ml) is almost 12 times higher than the one for normal saline (0.0009 US$/ml).

c. Please provide any additional relevant information with reference

d. Is the product available in several low and middle income countries?

4. Assessment of public health need
a. Please provide the public health need for this product (1-2 sentences)

Dengue is a systemic viral infection transmitted between humans by mosquitoes, of which the primary vector is *Aedes aegypti*. It is estimated that there are 50 million new infections per year in approximately 100 countries.

b. Do guidelines (especially WHO guidelines) recommend this product? If yes, which ones? List 1 or 2 international preferable

Current recommendations for the management of Dengue patients with hypotensive shock include the administration of both crystalloids and colloids:


5. Are there special requirements for use or training needed for safe/effective use?
If yes, please provide details in 1-2 sentences

No

6. Is the proposed product registered by a stringent regulatory authority?
   Yes X  No

7. Any other comments

8. What is your recommendation to the committee (please provide the rationale)

In consideration of the low quality of the evidence included in this review, the broader evidence for the lack of effectiveness of colloids compared to crystalloids in critically ill patients, and the higher cost of colloids, there is no justification for the inclusion of colloids for volume replacement in Dengue patients in the WHO List of Essential Medicines.

Revise and update the WHO guidelines so that recommended treatment of dengue patients is based on evidence.