Reviewer's report

Title: Crystalloid or colloid boluses for the management of dengue shock syndrome in the presence of ascites and pleural effusions?

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Reviewer: siripen kalayanarooj

Reviewer's report:

• Need more details of all 3 cases, especially the age, body weight, type, amount and duration of IV fluid given (including oral fluid) to these 3 patients before, during and after shock. Their clinical presentations (including bleeding episodes), vital signs, urine output and hematocrit (Hct) values on admission and follow up values (at least maximum and minimum Hct). Common associated conditions/ complications were not mentioned, e.g. bleeding (probably internal bleeding), electrolyte imbalance (hyponatremia, hypocalcemia), hypoglycemia, acidosis and organ (s) involvement (liver renal failure). If these complications were not corrected, shock might not be easily overcome and may result in increase the amount of IV fluid resuscitation..

• The total amount of oral and IV fluid before shock is very important factors contributing to fluid overload. Actually in the WHO guidelines (both 1997 and 1999) do not recommend IV fluid in the febrile phase, except in those cases with vomiting and moderate dehydration. In contrast to WHO TDR 2009 guideline that recommends IV fluid at maintenance rate in febrile phase. If oral fluid was plain water or the IV fluid given was hypotonic (NSS/2, NSS/3, NSS/5), this will cause massive plasma leakage no matter the amount given did not exceed their maintenance. These hypotonic solutions could not be maintained in the intravascular circulation.

• Pleural effusion and ascites could be detected in all 3 patients at the time of shock. This means that all 3 patients (had plasma leakage for quite a long period, probably 24 hours) already had early/ obvious signs of fluid overload at the time of shock. The WHO guidelines (1997 – not cited in this paper) clearly indicated the use of colloidal solution in these shock cases with fluid overload.

• The author has to clarify which rate of IV fluid that they used to treat these 3 cases. Which rate did they use? If they used the new WHO TDR 2009 guideline (larger amount is recommended compare to the previous recommendations) and all 3 cases had fluid overload, these recommendations need to be reviewed. The followings are the IV rate recommended by WHO different versions:

  o The rate of IV fluid for resuscitation of DSS recommended is 10-20 ml/kg/hr in WHO 1997 and 1999, i.e. 10 ml/kg/hr is recommended for Grade III (shock with narrowing of pulse pressure # 20 mmHg or hypotension) while 20 ml/kg/hr in Grade IV (profound shock or no measurable BP or pulse). The principle of IV fluid resuscitation for DSS is to give minimal amount to maintain intravascular circulation. If large amount of IV fluid is given, the patients will have more pleural
effusion and ascites that may lead to respiratory distress.

In WHO TDR guideline 2009, the recommended amount is 20 ml/kg in 15 minutes, follow by 10 ml/kg/hr. Second bolus 10-20 ml/kg in ½ - 1 hr is also recommended if the Hct remained high. The rate of Dextran (colloidal solution) is recommended 10-20 ml/kg/hr! Actually the recommended rate of Dextran is only 10 ml/kg/hr.

**Level of interest:** An article whose findings are important to those with closely related research interests

**Quality of written English:** Acceptable

**Statistical review:** No, the manuscript does not need to be seen by a statistician.

**Declaration of competing interests:**

I declare that I have no competing interests