

# Crystalloid vs Colloid in Initial Management of Dengue Shock Syndrome – A Meta-Analysis of Randomized Controlled Trials

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## Abstract

**Background** Dengue shock syndrome is a serious complication of dengue fever characterized by vascular leakage and disorder of hemostasis. The mainstay of therapy is by intravenous fluid replacement in such cases. However, there has long been a debate about whether crystalloid or colloid solutions should be used during initial management of dengue shock syndrome.

**Methods** We searched the PubMed and Cochrane database for randomized controlled trials regarding fluid management in dengue shock syndrome. The search results were independently screened by both authors, first by title, then abstract and lastly by full text. Three studies were included based on the inclusion criteria. Data was extracted and calculations were done using RevMan 5.3 software. We selected two outcomes, the first being recurrent shock after initial fluid therapy and the second being decrease of hematocrit value. Random effect model was used for calculations.

**Results** We grouped the intravenous fluids into colloid and crystalloid groups. Comparison was done based on recurrent shock and decrease of hematocrit after initial fluid therapy. The odds ratio of recurrent shock with crystalloid vs colloid was 1.17 (0.83, 1.65). Heterogeneity was  $I^2=0\%$ . Overall effect was  $Z=0.90$  ( $P=0.37$ ). The mean difference of hematocrit decrease with crystalloid vs colloid was -4.41 (-5.69, -3.14). Heterogeneity was  $I^2=15\%$ . Overall effect was  $Z=6.79$  ( $P<0.00001$ ).

**Conclusion** The meta-analysis shows slight advantage of colloid in decreasing hematocrit if used during initial therapy. However, there was no significant difference between crystalloids and colloids in terms of preventing recurrent shock. In the light of this finding the current WHO guideline seems appropriate in managing dengue shock syndrome. However, this study was limited by small number of included studies and the P value of the comparison of recurrent shock was non-significant. Further studies may be warranted to explore the role of colloids in the initial management of dengue shock syndrome.

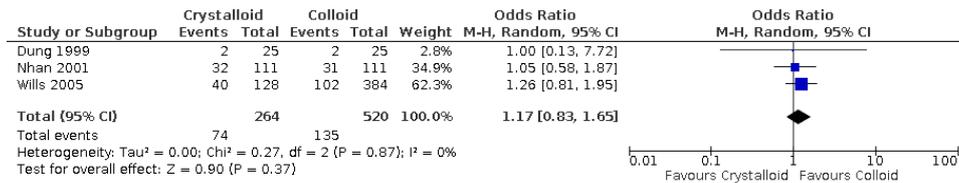


Figure 1: Forest plot of recurrent shock

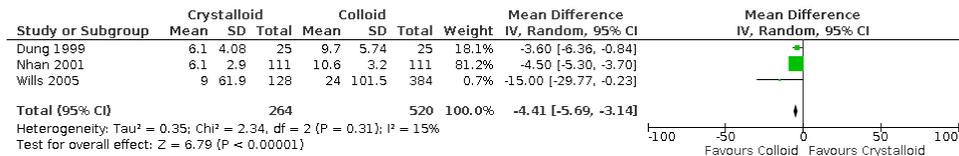


Figure 2: Forest plot of hematocrit values