

0.21% improvement in A1C, suggesting possible contamination of control subjects in this study.

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Clinical dehydration scale appears valid, but its impact on clinical outcomes is not clear

Goldman RD, Friedman JN, Parkin PC. Validation of the clinical dehydration scale for children with acute gastroenteritis. *Pediatrics* 2008;122:545-9.

Question Among children who present with acute gastroenteritis to an emergency department, is a clinical dehydration scale able to validly predict length of stay and need for intravenous fluids?

Design Prospective observational study.

Setting Emergency department at a large pediatric tertiary center in Canada.

Participants A total of 205 children, aged 1 month to 5 years, with symptoms of acute gastroenteritis.

Outcomes Length of stay, proportion of children receiving intravenous fluid rehydration, and proportions of children with abnormal serum pH values or bicarbonate levels.

Main Results The distribution of severity categories was as follows: no dehydration (score of 0), $n = 117$ (57%); some dehydration (score of 1-4), $n = 83$ (41%); moderate/severe dehydration (score of 5-8), $n = 5$ (2%). The 3 dehydration categories were significantly different with respect to the validation hypotheses (length of stay, mean \pm SD: none, 245 ± 181 minutes; some, 397 ± 302 minutes; moderate/severe, 501 ± 389 minutes; treatment with intravenous fluids: none, $n = 17$, 15%; some, $n = 41$, 49%; moderate/severe, $n = 4$, 80%; number of vomiting episodes in the 7 days before the

emergency department visit: none, 8.4 ± 7.7 episodes; some, 13 ± 10.7 episodes; moderate/severe, 30.2 ± 14.8 episodes).

Conclusions The clinical dehydration scale and the 3 severity categories were valid for a prospectively enrolled cohort of patients who were assessed in this tertiary emergency department. The scoring system was valuable in predicting a longer length of stay and the need for intravenous fluid rehydration for children with symptoms of acute gastroenteritis.

Commentary The authors' primary objective was to validate their clinical dehydration scale (CDS) in a prospective cohort of children with acute gastroenteritis. The scale consists of 4 physical examination variables: general appearance, eyes (sunken or not), moistness of mucous membranes, and presence of tears. Each variable is scored from 0 to 2 points. The results of this study seem to suggest that children with more than "none" of these clinical signs of dehydration may have a longer length of stay in the emergency department and may receive intravenous fluids. Although not unexpected, it is good to see that an increased CDS corresponds with increased use of emergency department resources. However, as we look to use this score in clinical practice, we must consider a few caveats. First, the use of "decreased tears" as a criterion is suspect, because not every child cries during their triage assessment. Second, the clinical utility of the CDS is not clear. The strength of the correlation between the CDS and the outcomes is not great enough to make me want to rely solely on these 4 findings. Third, the authors may have minimized the reasons for the variability in the length of stay or the need for intravenous fluids. The low number of children in the moderate/severe dehydration group makes the need for precision in determining outcomes even more important. Finally, the authors state that 5 children were admitted, but they do not report admission as an outcome variable (and they do not identify which CDS category these children were in, nor their length of stay). As with all clinical prediction rules, the most important evidence will come from future studies that assess its impact on practice.

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