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Reference:

Keeney, GE, et al. Dexamethasone for acute asthma exacerbations in children: a meta-analysis. *Pediatrics*. 2014 Mar; 133(3): 493-9.

Clinical Question:

Can Dexamethasone be used for acute asthma exacerbations effectively?

Background:

Dexamethasone has been proposed as equivalent therapy to prednisone/prednisolone and studied in multiple small trials. This meta-analysis examined the use of dexamethasone compared to prednisone or prednisolone in equivocacy and/or superiority.

Methods:

A thorough PubMed search revealed 667 resources that fit search criteria. Of those, six randomized-control trials were included in the analysis. All were performed in the ED, on children up to 18 years old, and had a mean of 171 participants. End-points include a 5-day, 2-week, and 4-week relapse rate, between studies. Data were abstracted by 4 authors and verified by a second. Two independent reviewers served as quality evaluators and inter-rater agreement was assessed.

Results:

There was no difference in relative risk (RR) of relapse between the 2 groups at any time point (5 days RR 0.90, 95% confidence interval [CI] 0.46–1.78, $Q = 1.86$, $df = 3$, $I^2 = 0.0\%$, 10–14 days RR 1.14, 95% CI 0.77–1.67, $Q = 0.84$, $df = 2$, $I^2 = 0.0\%$, or 30 days RR 1.20, 95% CI 0.03–56.93). Patients who received dexamethasone were less likely to experience vomiting in either the emergency department (RR 0.29, 95% CI 0.12–0.69, $Q = 3.78$, $df = 3$, $I^2 = 20.7\%$) or at home (RR 0.32, 95% CI 0.14–0.74, $Q = 2.09$, $df = 2$, $I^2 = 4.2\%$).

Discussion:

While this meta-analysis shows equivocacy between dexamethasone and prednisone/ prednisolone, it fails to address the risks and benefits of modifying standard therapy. Post-therapy vomiting was less in the dexamethasone groups, however I am surprised there were not more benefits discussed by the authors. Compliance is certainly a large benefit, and in patients where this will be a significant issue, I may consider this therapy over prednisone/prednisolone. One aspect to consider is cost. Orapred at CMC runs \$0.10/mg and decadron is \$4.00/mg. Sorry to these investigators (and any shareholders) I will still be using Orapred for my patients.
