admission to intensive care unit. HMA in children and adults during DKA management is associated with slow recovery from acidosis [3]. In a retrospective study [4], prolonged intensive care unit and hospital stay were observed in those with non-gap acidosis (secondary to hyperchloremia).

Use of normal saline as a rehydration fluid is known to cause dilutional-hyperchloremic acidosis. A recent trial [5] showed extended insulin requirement and hospital stay in those who received only NS as post-bolus rehydration fluid or those who received NS but were switched to during recovery when compared with children who received only N/2 saline. Earlier resolution of acidosis was observed when *Plasmalyte* (containing sodium 140 mEq/L, potassium 5 mEq/L, chloride 98 mEq/L, magnesium 3 mEq/L, acetate 27 mEq/L, gluconate 23 mEq/L; osmolality: 294 mOsm/L) was used [6] instead of NS in the initial 12-hours of management of DKA. An adult trial comparing NS with Ringer's lactate (RL) failed to show significant difference in time-to-resolution of DKA [7]. The only randomized trial comparing NS with balanced electrolyte solution (BES) for fluid resuscitation in children with DKA revealed that BES consistently prevented HMA [8]. The benefit of BES is attributable to a serum-like pH (7.4) and lower (98mEq/L) chloride content when compared with NS and RL. However, theoretical risk of hyperkalemia exists with use of RL [9]. In India, the lack of universal availability of BES/*Plasmalyte* and N/2 saline limits their use.

Though saline rehydration is the current standard of care, the debate concerning the ideal resuscitation fluid in DKA continues [10]. Normal saline, being neither 'normal' nor physiological (pH 5.5 with a high chloride content) can sustain hyperchloremia as shown in this case. Randomized trials comparing balanced fluids (like RL) with NS for rehydration in DKA are needed to determine the choice of fluid in DKA. Pediatricians must be cognizant of hyperchloremic acidosis in DKA.

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Management of Bronchiolitis

I read the recent, informative review article [1] on management of bronchiolitis with interest.Through this communication, I wish to seek certain clarifications:

a) Diagnostic confusion in an infant presenting with wheezing as bronchiolitis or viral bronchopneumonia or wheezing due to asthma.

b) Why only first time wheezers were defined as bronchiolitis? Although in the American Academy of Pediatrics guidelines [2], they have refrained from using word 'first time wheezing'.

c) Most common cause of bronchiolitis in developed [3] as well as developing countries [4] is Respiratory Syncytial Virus (RSV) which does not respond to bronchodilators or steroids – the two main therapies otherwise employed in treatment of wheezy infants. In most of the infants presenting with moderate to severe

respiratory distress needing hospitalization, use of bronchodilator nebulization, and often steroids is common practice to relieve distress besides giving oxygenation and other supportive measures like intravenous fluids, irrespective of diagnosis. There is recommendation for trial of bronchodilator rather than routine use [1,2]. But still there is hesitation in keeping sick babies only on oxygen therapy despite clinically diagnosing them as bronchiolitis. Although hypertonic saline nebulization [5] and nasal Continuous Positive Airway Pressure (CPAP) appear to have potential beneficial effect, more studies are needed to recommend their routine use.

d) As virological and radiological work-up is neither required nor easily available for diagnosis, therapy is mainly based on clinical condition at the time of admission. Although saturation by pulse oximetry is considered deciding factor for giving oxygen therapy, it cannot be taken as sole criteria. Are there any validated clinical scores for diagnosis and monitoring of such children?

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AUTHORS' REPLY

We thank Dr. Sharma for her interest in our article [1]. We provided an evidence-based update on management of bronchiolitis. Unfortunately, there are gray areas where there is inadequate evidence to guide the management.

We do appreciate that there may be difficulty in clinically differentiating between bronchiolitis or viral bronchopneumonia or wheezing due to asthma. There may be certain indicators for asthma like multiple previous similar episodes or family history of atopy/asthma.

The definition mentioned in the AAP guidelines is of little clinical relevance as it describes the pathophysiologic process in bronchiolitis [2]. It is further complicated by other phenotypes of wheezing, including transient wheezing during infancy, episodic and multi-trigger wheezing [3]. We mentioned that some authors have used the definition 'the first episode of wheezing in a child younger than 12 to 24 months who has physical findings of a viral respiratory infection and has no other explanation for the wheezing, such as pneumonia or atopy'; it is important to note the later part of the definition highlighting that there is no other explanation for the wheezing. A child with repeated episodes of wheezing may have bronchiolitis but other conditions like wheeze-associated lower respiratory infection, multi-trigger wheeze/ asthma are more likely.

As mentioned by the author, there is little evidence to support use of steroids or bronchodilators. Some of the children clinically diagnosed as bronchiolitis may have asthma which responds to bronchodilators; this is the rationale for a trial of bronchodilators. It will not be advisable to use therapies that have not demonstrated any benefits in clinical trials.

There are various clinical scores which include measures of respiratory rate, respiratory effort, severity of wheezing, and oxygenation. The most widely used score is Respiratory Distress Assessment Instrument [4]. However, none of the clinical evaluation scores have been found to be predictive of outcomes, or validated for use to titrate therapy [2].

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