Role of Zinc in Neonatal Sepsis: Emerging Data

The study conducted by Mehta, et al. [1] is indeed, one of its own kind and has a good internal validity, although following issues need attention.

It is not mentioned on what basis a dose for zinc (1 mg/kg/day) was decided; and how the exact dose of 1 mg/kg of zinc was administered in each infant by using a 10 mg dispersable tablet (almost all weighing less than 3 kg). The safety of administering zinc to an infant who needed to be nil per oral has also not been described. The breast feeding status of the infants in the two groups have not been mentioned. There is no mention of the average age at which the infants were enrolled in the study. The inclusion of other markers of infection like procalcitonin and blood culture (BACTEC) would have given more specificity in identifying sepsis patients. Some kind of sickness assessment score (PRISM / CRIB) to determine the severity of illness could help better understand the status of the given cohort. Duration of antibiotic treatment is not clear. 

Studies have shown that zinc supplementation is beneficial in reducing the mortality of small for gestation age (SGA) infants [2]. It will be prudent to sub-group the cohort as appropriate for gestational age (AGA) and SGA and then analyse the results. Demographic, clinical, microbiological data of the infants who died need to be compared with the rest of the group.

In a recently published multicentric randomized controlled trial (RCT) by Bhatnagar, et al. [4] the authors reported that zinc reduced treatment failure (defined as a need to change antibiotics within 7 days of randomization, or a need for intensive care, or death at any time within 21 days) in infants younger than 120 days with probable serious bacterial infection by 40%. These promising results are contrary to that seen by the authors [1].

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REPLY
The dose of zinc as 1 mg/kg was chosen based on zinc dosing in neonates as in standard texts [1,2]. The 10 mg tablets were dissolved in expressed breastmilk made up to
10 mL, and 1mL/kg of this was dispensed to the participants of this trial. Though the safety of zinc supplementation in empty stomach has not been demonstrated earlier, we did not encounter any adverse reactions in any of the 614 neonates enrolled in the trial.

We agree to some of your points mentioning lacunae in our study and hope that future studies on this topic would incorporate these suggestions. Our findings are indeed contrary to the findings of the study by Bhatnagar, et al. [3] and as suggested, further studies are required to understand the exact role of zinc as an adjunct in the treatment of infants/neonates with sepsis.

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We read with interest the recent article on ‘Congenital Fluctuant Penile Swelling’ [1]. In this article authors have described a large anterior urethral diverticulum in a 15-month old male child presenting with a ventral penile mass, which was getting more prominent during micturition. Micturating cystourethrogram (MCU) and subsequent surgery proved it to be a large anterior urethral diverticulum.

Radiologically, image (MCU) provided by authors closely resembles that of congenital scaphoid megalourethra. Congenital megalourethra is a known but rare congenital malformation of the penile urethra [2-5]. It is defined as diffuse dilatation of the anterior urethra which may be due to absence of development or deficiency of erectile tissue of penis [3-5]. This particular congenital anomaly is known to affect the anterior part of urethra and usually causes abnormal shape and size of the penile shaft, especially during voiding [3]. Megalourethra, traditionally has been divided into scaphoid and fusiform sub-types. The scaphoid form of megalourethra (more common) is due to poor development of the corpus spongiosum in the anterior urethra whereas the fusiform type is believed to be due to maldevelopment of both corpus spongiosa and corpus cavernosa [3-5].

Megalourethra is known to be associated with other abnormalities of the urinary tract, and these include hydronephrosis, renal dysplasia, vesicoureteric reflux, prune-belly syndrome, urethral duplication, undescended testes and posterior urethral valves [3-5].

Although some authors earlier believed that congenital anterior urethral diverticula and megalourethra are in the same spectrum of a single malformation [3], however, Appel, et al. [6] differ from this and believe that congenital urethral diverticula are different from megalourethra, as it is associated with narrow orifices as well, thereby causing obstruction by luminal compression by filling, whereas megalourethra does not have a true distal anatomic obstruction.

The other possible differential diagnoses of megalourethra to be ruled out include congenital urethral diverticulum, anterior urethral valve, Cowper’s syringocele and congenital urethral stricture. In most of these cases, micturating cystourethrogram (MCU) would clinch the diagnosis.

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