AUTHOR'S REPLY

We acknowledge and express thanks to the authors for reviewing our study and bringing out relevant points for discussion. We totally agree that the prevalence of 100% vitamin K deficiency at the time of enrollment (*i.e.* at 7th day of antibiotic therapy) can be attributed to prematurity and co-existing sepsis for which the neonates required antibiotic therapy. We collected data on type of antibiotics in the study population as shown in ***Table* I**.

We did not find any specific class of antibiotics, which led to the vitamin K deficiency as evident by PIVKA levels >2 ng/mL. All the babies who had any episode of clinical bleed before enrollment were excluded. Regarding the postnatal age of 10.5 and 10 days in both the groups, we enrolled babies at 7th day of antibiotic therapy and babies with both early and late onset sepsis were enrolled. Neonatal cholestasis was one of the exclusion criteria at the time of enrollment.

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TABLE I DISTRIBUTION OF ANTIBIOTIC THERAPY BETWEEN THE TWO GROUPS OF NEONATES WITH SEPSIS

Antibiotic	*Vitamin K group (n=41)*	*Control group (n=39)*
Ciprofloxacin	20 (48.7)	15 (36.5)
Amikacin	41 (100)	39 (100)
Piperacillin-Tazobactam*	20 (48.7)	28 (71.2)
Vancomycin	7 (17.1)	6 (15.4)
Cefoperazone- Sulbactam	2 (4.8)	5 (12.8)
Metronidazole	0	1 (2.5)
Amoxycillin-clavulanate	3 (7.3)	2 (5.1)
Ampicillin	2 (4.8)	0
Netilmicin	2 (4.8)	1 (2.5)
Cefazolin	1 (2.4)	0
Meropenem	1 (2.4)	1 (2.5)
Cefotaxime	0	1 (2.5)

*Data presented as n (%); all P>0.05 except *P=0.02.*

Multi-use Hypertonic Saline Packets for Nebulization – A Threat for Patients with Cystic Fibrosis in India

Hypertonic saline is used for nebulization in various respiratory conditions – both in adults and children. Patients with Cystic fibrosis (CF) are required to use it many times a day for airway clearance to hydrate the viscid mucus in their airways [1].

In India, the only formulation of hypertonic saline available is a 3% solution dispensed in 100 mL sterile packs/bottles. On an average, each CF patient reuses the same bottle costing approximately Rs.100 for 5 to 6 days. This leads to a unique problem of contamination of the solution with bacteria, including *P. aeruginosa*, the very organism against which much of the antibiotic treatment is directed at, in CF patients.

Pseudomonas is ubiquitous in the environment and thrives on wet surfaces. Lack of adequate microbial clearance and pro-inflammatory environment, which are characteristic of CF airways, sets the stage for a downhill course once it colonizes the CF airways. In one study, the 8-year risk of death was found to be 2.6 times higher in patients colonized with *Pseudomonas* than in those without [2]. Isolation of *P. aeruginosa* from the airway secretions of a 2-month-old baby, 3 weeks after initiation of hypertonic saline nebulization prompted us to check the nebulization solution for bacterial contamination.

We performed surveillance cultures on 12 selected samples of hypertonic saline drawn from the bottles/ packs being reused by CF patients. Eight of the 12 samples (66%) were contaminated, 4 growing multiple bacteria. *Pseudomonas* strains isolated were *P. aeruginosa*, *P. putida* and *P. stuzeri*; one isolate from each of the three contaminated samples. Other bacteria were non-fermenting Gram negative bacilli (other than *Pseudomonas* and *Acinetobacter*), *Klebsiella*, *Citrobacter diversus*, *Acinetobacter haemolyicus* and coagulase-negative *Staphylococcus*.

Contaminated hypertonic saline solution can be a source of infection not only for CF patients, but also for those whose airway defenses are altered due to other reasons. To overcome this problem, we now pack 150 mg of pharmaceutical grade sodium chloride powder, which the caregiver can dilute with commercially available 'sterile water for injection' dispensed in 5 mL packs. We tested this