Palivizumab prophylaxis during respiratory syncytial virus outbreak in the neonatal intensive care unit

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To the Editor,

We read with great interest the papers on respiratory syncytial virus (RSV) prophylaxis in preterm infants by Öncel et al.[1] and the seasonal variations of RSV infections in Turkey by the Turkish Neonatal Society[2]. Öncel et al.[1] suggested that, although administration of palivizumab did not have any cost benefit, a reduction in hospitalization rates in association with palivizumab treatment was observed in infants born at ≤$28^{6/7}$ weeks of gestation. The Turkish Neonatal Society showed two consecutive RSV seasons in Turkey, with the first seasonal peak in January and the second in March. We would like to share our experience regarding two RSV outbreaks in our neonatal intensive care unit (NICU).

The first outbreak occurred 29 February - 12 March 2012. There were 10 preterm (median gestational age (GA): 29.3 weeks; range: 26.2-32 weeks; birth weight (BW): 848-1520 g), 2 late preterm (GA: 35-37 weeks) and 4 term infants in the NICU when 2 term newborns with lower respiratory tract infection (LRTI) were admitted to the NICU. Polymerase chain reaction (PCR) screening revealed RSV type B infection in these 2 patients. Although the infected patients were isolated, a hospitalized preterm infant was also determined to have RSV type B infection. The remaining 15 infants were screened by PCR and all had negative results. In order to prevent an escalating NICU outbreak, palivizumab prophylaxis was administered to 9 preterm infants and 1 term infant with congenital heart disease. No patient developed RSV infection after this prophylaxis[3].

The second outbreak occurred 22 January - 10 February 2013. There were 5 preterms with GA ≤30 weeks (median GA: 28 weeks; range: 26.2-30 weeks; BW: 810-1450 g), 6 preterms with GA of 32-36 weeks and 3 term infants in the NICU when a term infant with LRTI was admitted to the NICU. The patient was diagnosed as RSV infection by rapid antigen test (Respi-Strip®), and the diagnosis was subsequently confirmed by PCR. Despite the isolation measures taken, 2 more cases were determined to have RSV infection. One of these cases was a preterm (27.2 weeks, 990 g), whereas the other was a late preterm (34.5 weeks, 2230 g). RSV type A infection was confirmed in all 3 patients by PCR. The remaining 12 patients were screened by rapid antigen test, which was negative for all. Four of the preterm infants (<32 weeks) and 1 of the term infants who had congenital heart disease received palivizumab prophylaxis. Four days after palivizumab prophylaxis, another preterm with GA of $33^{5/7}$ weeks who did not receive palivizumab prophylaxis had severe LRTI by RSV and required high-frequency oscillatory ventilation support. None of the remaining 11 patients (5 of whom received palivizumab) developed RSV infection during their hospitalization.

As the number of NICUs like ours, which embraces a family-centered model for patient care, increases, greater difficulties related to infection control measures may emerge[4]. The two outbreaks we experienced in the previous two years occurred in seasons similar to those of the trial of the Turkish Neonatal Society[2]. We agree with Öncel et al.[1] and Dizdar et al.[4] that implementation of tight measures of infection control and maintenance of stringent hygienic conditions are important, but palivizumab prophylaxis for high-risk patients helps to prevent the spread of the RSV epidemic. The place of palivizumab prophylaxis still remains unclear for endemic nosocomial RSV. The Turkish Neonatal Society recommends RSV prophylaxis for premature infants in the NICU who are born before 29 weeks and for those born after 29 weeks in the presence of bronchopulmonary dysplasia, when at least 3 RSV-positive patients are present in the NICU. However, there is not yet a universal

consensus about the GA or clinical conditions of the patients for RSV prophylaxis in a NICU outbreak. If we had not given palivizumab prophylaxis after detection of the index cases, a larger RSV outbreak might have occurred in our NICU. On the other hand, if we had given palivizumab prophylaxis to critically ill infants and infants with GA of 30-34 weeks, the additional patient might not have developed RSV bronchiolitis. We suggest that further studies are needed regarding the prevention of RSV outbreaks, especially in family-centered NICUs like ours.

REFERENCES

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