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Pulmonary interstitial emphysema in newborn infants

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Objective: Pulmonary interstitial emphysema (PIE) is a serious complication of mechanical ventilation and more frequent seen in PT babies with RDS. There is no standard treatment. Here, we reported 14 NB infants who had radiological evidence of PIE in a 4-year period and stress the effect of gentle mechanical ventilation. Method: This is a retrospective study. Total 14 NB were enrolled from Jan, 2012 to Dec, 2015 in our NICU. Aggressively reduced MAP to keep PaO₂ around 45-60 mmHg and PaCO₂ 50- 70 mmHg, as long as pH>7.25 within 24-72 hrs after PIE appeared on CxR. Other treatment modalities such as recruitment with Neopuff, on prong position and early extubation were also applied. If patients couldn't tolerate the conventional ventilator, we switched to HFOV support.

Results: Collected radiological finding of PIE, including 11 PT babies mechanical-ventilated for RDS (78.6%) and 3 FT babies with the diagnosed of MAS (14.3%) or congenital pneumonia (7.1%). The average GA is 29.8±5.5 wks (24-39), and the average BBW is 1644.6±1088.2 gm (640-3675). PIE onset time: within the 1st 10 days of life, and 9 of 14 (64.3%) occurred within the 1st 3 days. There are 3 (21.4%) unil. PIE cases, and other 9 are bil. Otherwise, 9 cases (64.3%) had concurrent other air-leaks such as pneumothorax and pneumomediastinum. When the PIE occurred, 3 infants were treated with NIPPV, and other 9 infants received intubation under conventional ventilator or HFOV support. The mortality rate was 21.4% (one died from NEC with perforation and two expired due to large PDA with massive pulmonary haemorrhage). All survival cases had complete radiological resolution of PIE and experienced successful extubation. Conclusions: Early detection of PIE, all patients could be extubated with complete radiographic resolution under gentle mechanical ventilation support. Further studies with larger sample size are needed.

Biography

A 30-year experienced physician is now specializing in neonatal & pediatric intensive care, neonatal and pediatric respiratory care.

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