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## A retrospective, single-center analysis of clinical features and mortality risk factors in pediatric pertussis patients with severe pneumonia and encephalopathy complications in Southwest China

**Background and objective**

Pertussis remains a serious threat to infants and young children, especially when complicated by pneumonia or encephalopathy. This study aimed to describe the clinical features, complications, treatments, and mortality risk factors in children with pediatric pertussis patients with severe pneumonia and/or encephalopathy complications over ten years in Southwest China.

**Methods**

A retrospective study was conducted on hospitalized children with pediatric pertussis patients with severe pneumonia and/or encephalopathy complications at the Children's Hospital of Chongqing Medical University from 2015 to 2024. Clinical data were analyzed across groups with different complications. Mortality risk factors were identiffed using univariate and multivariate analyses.

**Results**

A total of 1,088 cases were included. Patients were grouped into severe pneumonia without encephalopathy(Group A); encephalopathy without severe pneumonia (Group B); both severe pneumonia and encephalopathy (Group C). Those with both severe pneumonia and encephalopathy (Group C). had more apnea, pulmonary hypertension, extreme leukocytosis, thrombocytosis, and Acinetobacter baumannii infection. They required more intensive treatments ($P < 0.05$), had longer hospital stays, and the highest mortality. Seizures were more frequent in the encephalopathy group (Group B), while elevated lactate and immunoglobulin use were less common ($P < 0.05$). Univariate analysis identiffed several factors signiffcantly associated with mortality, including female sex, pulmonary hypertension, elevated lactic acid levels, lymphocytosis, leukocytosis, Complications of severe pneumonia, combined severe pneumonia with encephalopathy. Multivariate analysis identiffed pulmonary hypertension, and White blood cell count($\geqslant 30 \times 10^9$/L) as independent death risk factors.

**Conclusion**

Pediatric pertussis patients with severe pneumonia and/or encephalopathy complications in children is often complicated by pneumonia and/or encephalopathy, making treatment more difffcult. Rising antibiotic



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