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(AD)

RDS is one of the most prevalent conditions in preterm infants, primarily caused by insufficient surfactant production. The treatment

Neonatal jaundice, characterized by hyperbilirubinemia, is commonly seen in newborns. Phototherapy remains the primary treatment, with more severe cases requiring exchange transfusion. Advances in fiber-optic phototherapy devices have improved the safety and efficacy of jaundice treatment, while non-invasive bilirubin monitoring tools are enhancing early detection and management [6].

A

A systematic review of the literature and clinical trials shows that early intervention and the application of advanced medical therapies significantly improve the outcomes for newborns with these disorders. Studies on RDS treatment report reduced incidences of chronic lung disease with the use of LISA and HHHFNC. Neonatal sepsis management protocols that incorporate risk calculators and rapid diagnostics have reduced mortality rates and the overuse of antibiotics. Hypothermia therapy for HIE, when combined with neuroprotective agents, has shown promise in improving long-term neurodevelopmental outcomes. In the case of CHD, advances in fetal diagnosis and minimally invasive surgery are associated with better survival rates and lower complication rates. Finally, early and effective management of neonatal jaundice has dramatically decreased the incidence of kernicterus and associated neurological sequelae [7,8].

D

These results emphasize the critical role of timely diagnosis and intervention in improving neonatal outcomes across a range of diseases and disorders. For RDS, the shift toward less invasive respiratory support has reduced the long-term complications associated with mechanical ventilation, though more research is needed to determine the optimal timing and dosing of surfactant administration. In neonatal sepsis, there is an ongoing need to refine diagnostic criteria and explore non-antibiotic treatments to mitigate antibiotic resistance. Therapeutic hypothermia remains the mainstay of HIE treatment, but combining it with novel neuroprotective therapies holds the potential to further reduce the risk of neurodevelopmental disabilities [9,10]. While the treatment of congenital heart defects has greatly advanced, challenges remain in providing equitable access to specialized care, particularly in

resource-limited settings. Phototherapy continues to be highly effective for neonatal jaundice, though ensuring access to bilirubin screening in low-resource areas is essential to prevent complications.

C

Significant progress has been made in the treatment of various neonatal disorders, driven by advancements in diagnostic tools, non-invasive early detection, and multidisciplinary approaches are keys to improving outcomes for newborns, particularly those at high risk for complications. Ongoing research and innovation in neonatal care hold the promise of further enhancing survival rates and long-term health outcomes, and developing novel therapies that target the underlying pathophysiological mechanisms of neonatal diseases.

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