

## [2365.1] Prevalence and Root Causes of Kernicterus in Nigeria

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**BACKGROUND:** Kernicterus is responsible for 6% or more of neonatal deaths in Nigeria (~18,000 preventable deaths/year). The reasons for the high rate of acute bilirubin encephalopathy (ABE) are not fully understood.

**OBJECTIVE:** To document the prevalence of ABE in 5 regions of Nigeria and identify the underlying behavior and medical causes.

**DESIGN/METHODS:** This collaborative prospective observational study was performed in 9 teaching hospitals in Kano (2), Zaria, Jos (4), Lagos, and Asaba. We gathered demographic data, antenatal, birth, and postpartum histories, and laboratory data from all patients treated for jaundice. We compared data from neonates with and without ABE to identify the root causes of bilirubin encephalopathy in this population.

**RESULTS:** Collectively, 160/1026 (15.6%) jaundiced neonates had suspect or severe ABE (37 died), representing an average 2.8 ABE cases/center/month. Behavioral factors associated with ABE ( $P < 0.001$ ) included delayed admission  $\geq 3$  days ( $X^2$  18.24, OR 2.06), travel distance to hospital  $> 15$  km ( $X^2$  13.28), and lack of maternal knowledge about jaundice ( $X^2$  25.57 OR 2.96). Home deliveries, attended by traditional birth attendants, were highly associated with ABE ( $X^2$  51.0, OR 3.9); 73% of home birth mothers attended antenatal clinics compared with 96% of those delivering in hospitals. Clinical factors associated with ABE ( $P < 0.001$ ) included low weight, blood type incompatibility, anemia, and sepsis. 59% of neonates with ABE weighed  $\leq 2500$ g and 39%  $> 2500$ g. ABE occurred in 35/224 infants with ABO and 3/35 with Rh incompatibility setups, but only 11/38 had evidence of significant hemolytic disease (hematocrit  $< 35\%$ ). The majority of ABE cases were unexplained, although 27 neonates with severe hemolytic anemia (TSB  $> 20$  and hematocrit  $< 30\%$ ) probably had hemolytic crises from G6PD deficiency. ABE was associated with sepsis in 13 cases.

**CONCLUSIONS:** Delayed recognition/treatment of severe jaundice resulting from a lack of knowledge is a major cause of ABE. Attainable goals to reduce ABE in Nigeria include increasing public awareness about jaundice, especially for those selecting home birth, closer monitoring of low birth weight infants, and providing jaundice services closer to home. Instructing health providers and mothers to avoid substances that might cause hemolysis, how to recognize jaundice and understand when to seek help could reduce the high prevalence of ABE in Nigeria significantly.

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