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Intraoperative Phototherapy for Hyperbilirubinemia

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HYPERBILIRUBINEMIA or jaundice when severe and if untreated has disastrous yet preventable neurotoxic effects, specifically, bilirubin-induced encephalopathy or kernicterus.[1,2] Intraoperative phototherapy using an underbody bili blanket (*red arrows*) can minimize treatment interruptions, which is preferential during light therapy. Although dual-source (anterior and posterior) light therapy is preferred, this may not allow for operative access to the patient. As seen in these images, the patient should be positioned to provide maximal light to skin interface, with the cautery pad positioned to allow maximal light exposure. Patients should be well hydrated and have eye shields because phototherapy may result in dehydration from insensible losses and toxicity to the immature retina. Although surgery should be delayed until hyperbilirubinemia is resolved, in emergent or semi-urgent cases, maintenance of phototherapy intraoperatively, especially in lengthy cases, should be considered.

Bilirubin is a product of erythrocyte catabolism with a complex degradation and elimination pathway. Phototherapy uses light energy to change the structural configuration of bilirubin converting it to a structural isomer that can be excreted in the urine without the need for conjugation.[3]

Bilirubin levels may increase in the hours prior to anesthesia, as reduced caloric intake and dehydration resulting from *non per os* times reduces bilirubin reabsorption from the gastrointestinal tract.[1] Anesthesia providers should communicate with the neonatal intensive care unit to reduce *non per os* times as well as minimize time away from light therapy treatment, which works best when uninterrupted. The bilirubin level above which the patient would be considered for exchange transfusion should be discussed with the neonatologist according to nomogram guidelines from the American Academy of Pediatrics.[1] Preoperative evaluation also should focus on presence of liver dysfunction, which, when combined with hyperbilirubinemia-dependent vitamin K deficiency and/or prematurity, may result in coagulopathy.[3] Unless in extreme cases of severe concomitant liver and/or kidney failure, perioperative antibiotics should be administered based on institutional neonatal dosing guidelines. Additionally, neonatal sepsis may result in hyperbilirubinemia and should be considered in the preoperative evaluation.

Competing Interests

The author declares no competing interests.

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