Childhood Effects of Phototherapy - Is Cancer Risk Real?
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In a recently released issue of Pediatrics, Dr. Jean Digitale and colleagues reassess the association between newborn phototherapy for jaundice and childhood cancer in their large Northern California cohort, aiming to replicate work done in Quebec that showed a later childhood increase in solid tumors in infants who received phototherapy (10.1542/peds.2021-051033). Clearly this is a hot button topic, and highly relevant to families and practitioners as we vigilantly follow bilirubin levels, aiming to begin phototherapy at the right level to prevent any risk of kernicterus. While phototherapy is generally considered safe, there is a positive correlation between phototherapy duration and markers of DNA damage, and this risk is not related to hyperbilirubinemia itself. Dr. Digitale and colleagues ask in this current study whether a latent period, operationalized as a longer follow up, reveals any increased risk of cancer following phototherapy for jaundice.

This cohort study updates a prior study from this group by adding 5 additional years of follow up of the original cohort (through March 2019) as well as 6 additional years of birth cohort (now through 2017). This final cohort includes 139,100 children born at ≥35 weeks gestation who had what was considered a "qualifying bilirubin level", defined as 3 mg/dL below to 4.9 mg/dL above the American Academy of Pediatrics guideline's qualifying levels for phototherapy. This extraordinarily large cohort was assembled from 751,170 infants born between 1995 and 2017, and the authors carefully walk us through the process of confirming study eligibility. The main exposure was birth hospitalization phototherapy (any or none), and the main outcome was childhood cancer (hematopoietic cancer, solid tumors, other cancers); multiple relevant demographic variables were included, for example, race, presence of Down Syndrome and maternal age.

The Results section is fascinating, because the unadjusted results (meaning without taking into account the relevant demographic and other descriptors) showed a positive relationship between phototherapy and cancer, but this was not confirmed once the full analysis (that accounted for these demographic and other factors) was completed. The authors looked at their results from several analytical angles, for instance before and after age 4 years, and these results are well explained and also interesting. Clearly the authors did not confirm the Quebec study's worrisome results - but why not? The Discussion is well written and helps readers (whether statistically savvy or not!) understand why different results might have been obtained when very similar cohorts were studied in relatively similar ways. This is a reassuring study and supports continued guideline-directed phototherapy. But is it the final word? What do you think - let us know your thoughts via this blog or our social media sites (Facebook, Twitter, or Instagram).

Reference:
1. Ramy N, Ghany EA, Alsharany W, Nada A, Darwish RK et al. Jaundice, phototherapy and DNA damage in