

July 7, 2022

CLINICAL BIOCHEMISTRY

Early Detection of Neonatal Cholestasis

Date effective: July 18, 2022

Background Information: Biliary Atresia occurs in 1 to 2 infants per year in Manitoba. Diagnosis before 1 month of age improves survival and may prevent the need for a liver transplant by early referral for a Portoenterostomy. Prior to implementing bilirubin reflex test with comments in 2018, there was at least one patient referral every year with delayed diagnosis of biliary atresia; currently most patient referrals are between 30-45 days of age and none exceeded 90 days. Recent research data from the Japanese Biliary Atresia registry demonstrates best outcomes if portoenterostomy surgery is performed in the neonatal period, we intend to diagnose and treat these patients in neonatal period.

Change in Test Procedure:

- Reflex testing to direct (conjugated) bilirubin (DBIL) for infants 30 days to 3 months began April 17, 2018. **This reflex testing is being expanded to include infants 14 days to 6 months of age.**
- **For infants 14 days to 6 months of age**, if total bilirubin (TBIL) is $> 20 \mu\text{mol/L}$, lab will automatically add and report a direct (conjugated) bilirubin (DBIL). If the DBIL is $>20\%$ of the TBIL, and the DBIL is $>17 \mu\text{mol/L}$ the lab will add a comment to the DBIL report: "Elevation in conjugated (direct) bilirubin level is pathologic. Prompt evaluation is necessary for neonatal cholestasis including biliary atresia. Please consider discussing with pediatric gastroenterologist or pediatrician on service (HSC paging 204-787-2071)."
- For infants less than 14 days of age, only the ordered bilirubin tests will be performed. The lab will not perform DBIL testing unless it is ordered.

References/Resources:

- Benchimol, E. et. al. "Early diagnosis of neonatal cholestatic jaundice" *Can Fam Physician* 2009; 55:1184-92
- Approved at WRHA Pediatric/Child Health Standards Committee Meeting January 25, 2018
- Nio, M., Wada, M., Sasaki, H. et al. Effects of age at Kasai portoenterostomy on the surgical outcome: a review of the literature. *Surg Today* 45, 813–818 (2015).
- Schreiber, R.A. et. al. "Biliary Atresia in 2021: Epidemiology, Screening and Public Policy" *J. Clin. Med.* 2022, 11(4), 999.

Patient Impact:

- May be life saving for an infant with biliary atresia by preventing delayed diagnosis and therefore preventing need for a liver transplant

System Improvements:

- Promotes prompt assessment of infants with jaundice lasting more than 14 days

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