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## Evaluation of $^{99m}\text{Tc}$ -Mebrofenin in The Diagnosis of Neonatal Biliary Atresia

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Purpose: By means of  $^{99m}\text{Tc}$ -Mebrofenin hepatobiliary scintigraphy to diagnose neonatal biliary atresia and differentiate it from neonatal hepatitis syndrome. Methods:  $^{99m}\text{Tc}$ -Mebrofenin scintigraphy were performed in 24 infants (15 males, 9 females) with persistent jaundice after birth from 1996,11 to 1998,5. The age was from 23 days to 210 days (average 68.3 days).  $^{99m}\text{Tc}$ -Mebrofenin was given intravenously as a radiopharmaceutical, the dose was 37 to 74 MBq according to the body weight. The infants should be fast 4 hours before imaging. The biliary tract imaging was performed routinely at 10 min, 15 min, 30 min, 1 h, 2 h, 4 h, 6 h postinjection and 24 h when it was necessary. The instrument was dual-detector SPECT (Helix-6D, Elscint com). The plane imaging was performed with high sensitivity low energy collimator. Results:  $^{99m}\text{Tc}$ -Mebrofenin began to concentrate in the liver within the first few minutes after injection, and by 15 minutes most of the radiopharmaceutical were removed from the blood stream and were concentrated within the liver in all children, 16 of whom failed to show bile excretion into the gall bladder and gut tract, and amount of radioactivity in the liver could be visualized at 24 hr postinjection. The diagnosis of biliary atresia and narrowed common bile duct were conformed at laparotomy and on clinical grounds in 11 of 16 children. The diagnostic sensitivity of atresia (include narrowed common bile duct) was 100%, specificity was 62%. Delayed gall bladder and gut tract scintigraphy were showed in 6 children, 4 of whom were neonatal hepatitis. The jaundice caused by mother's milk was diagnosed in 4 cases, 2 of whom showed normal hepatobiliary scintigraphy. DISCUSES: Neonatal hepatitis syndrome was diagnosed in 9 children on clinical ground. Among them, 5 cases had shown no radioactivity appeared in gut at 24 hr and another 4 cases showed delayed imaging of gall bladder and gut tract. Because the specificity of this examination was lower, the clinical history, biochemistry tests, liver biopsy and other examinations should be combined to make exact diagnosis in these cases. The competing ability of Mebrofenin with bilirubin was more active than that of EHIDA. When the concentration of bilirubin reached to 342-513  $\mu\text{mol/L}$  in serum, the liver cells can take up  $^{99m}\text{Tc}$ -Mebrofenin significantly. So in these condition the excellent imaging of hepatobiliary could be obtained. The positive rate of atresia would be improved with  $^{99m}\text{Tc}$ -Mebrofenin imaging. CONCLUSIONS:  $^{99m}\text{Tc}$ -Mebrofenin, being a hepatobiliary scintigraphy agent, was helpful in the diagnosis of neonatal biliary atresia and differentiating it from neonatal hepatitis syndrome ,even better in children whose bilirubin values were much higher.