Expression of LECT2, α-SMA, dan COL1A1 as Prognostic Biomarker in Indonesian Biliary Atresia Patients Post Kasai Surgery

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Abstract

Background: Biliary atresia (BA) is the most common cause of cholestasis in children under three months of age. The liver fibrosis may progress to cirrhosis; even with the Kasai procedure, 80% of infants with BA might still have progressive liver fibrosis and need liver transplantation. *LECT2* plays a role in liver fibrosis and modulates *TGF-β* that mediates increasing expression of *α-SMA* and *COL1A1.* This study investigated the expression of *LECT2*, *α-SMA*, and *COL1A1* in biliary atresia patients.

Methods: This is a case-control study. Liver samples from patients with BA and their non-BA controls were obtained. Tissue RNA was extracted using the total RNA Mini Kit (Tissue). The expression of *LECT2, α-SMA, COL1A1 genes* and *GAPDH* as housekeeping gene was analyzed by One-step qPCR using Kapa SBYR Fast qRT-PCR One Step Kit Universal and BioRad CFX Real-Time PCR System (California, USA). The data are presented as mean ± SD and analyzed using Livak methods and independent t-test.

Results:. There was an increased in the expressions of *LECT2* (5.90-fold) on liver samples of BA patients (ΔCT -1.63 ± 12.68) compared to non-BA samples (0.93 ± 1.54; p=0.19). There was an increased expression of *α-SMA* and *COL1A1* (2.50-fold and 11.76-fold, respectively) compared to controls (ΔCT -0.75 ± 10.68 vs 0.58 ± 1.42; p=0.15) and (ΔCT 2.47 ± 13.64 vs 6.03 ± 12.26; p=0.25), but the differences were not statistically significant.

Conclusion: Our study shows no aberrant *LECT2, α-SMA,* and *COL1A1* expressions in the liver of BA patients. These findings imply that these gene expressions might not be associated with liver fibrogenesis in BA patients.

Keywords: Biliary Atresia; LECT2; α-SMA; COL1A1