The accumulation of regulatory t cells in the hepatic hilar lymph nodes in biliary atresia

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Abstrak

PURPOSE: A proposed etiopathogenesis of biliary atresia (BA) involves T-cell-mediated inflammatory bile duct damage and progressive hepatic fibrosis. Pediatric surgeons often observe swelling of the hepatic hilar lymph nodes during the Kasai procedure. Given the importance of regulatory mechanisms in immune responses, the present study was designed to analyze the quantitative changes of regulatory T cells (T reg cells) in the hepatic hilar lymph nodes (hepatic hilar LNs) and peripheral blood (PB) in BA.

METHODS: The hepatic hilar LNs and PB obtained during the Kasai procedure were analyzed by flow cytometry. The ratios of total and active Tregs to the total CD4+ cells in the PB and the hepatic hilar LNs were compared.

RESULTS: In patients with BA, the ratios of both the total and active T reg cells in the hepatic hilar LNs were higher than those in the PB (total T reg cells: PB vs. LN; P<0.001; active T reg cells: PB vs. LN; P=0.001). In BA patients, the increase in the ratio of active T reg cells to the CD4+cells in the LNs in comparison to the PB was greater than that in control patients. The ratio observed in the BA patients was almost double the ratio observed in the control patients. The median LN/PB ratio in the BA patients was 3.1, while that in controls was 1.6 (P=0.03).

CONCLUSION: The present study showed that the ratios of both total T reg cells and active T reg cells were higher in the hepatic hilar lymph nodes of BA patients. This finding could shed light on the pathogenesis of BA.