Article 7

Abstract:

Background/Aims: Pediatric immune thrombocytopenia (ITP) is an autoimmune disease; whose etiology is not exactly understood and seems to be highly multifactorial. Long non-coding RNAs (lncRNAs) are key regulators of different actions, which contribute to the development of many autoimmune diseases. To gain a further understanding, we estimated the relative expression of lncRNAs Metastasis-associated lung adenocarcinoma transcript 1 (MALAT1) and tumor necrosis factor-α (TNF-α) and heterogeneous nuclear ribonucleoprotein L (hnRNPL) immune-regulatory lncRNA (THRIL) in pediatric ITP. **Methods:** In this case-control study, analysis of the expression profiles of these lncRNAs in blood samples from children with ITP and healthy controls (HCs) using quantitative real-time PCR was done. The association of MALAT1 and THRIL with ITP clinical features and their potential usage as non-invasive circulating biomarkers for ITP diagnosis was also evaluated. The receiver operating characteristic curve was constructed, and an area under the curve was analyzed. **Results:** Both lncRNAs MALAT1 and THRIL were significantly upregulated in ITP patients in comparison to HCs ($p < .0001$ and $= .001$ respectively). In addition, there was a positive significant correlation between the expression level of both biomarkers among patients ($r = 0.745$, $p < .0001$). At cutoff points of 1.17 and 1.27 for lncRNAs MALAT1and THRIL, respectively, both biomarkers had an excellent specificity (100% for both) and fair sensitivity (63.6 and 73.3% for lncRNAs MALAT1and THRIL, respectively). Improvement of biomarkers specificity was obtained by evaluation of the combined expression of both biomarkers. Serum lncRNAs MALAT1 and THRIL could be used as potential biomarkers in differentiating childhood ITP patients and HCs.

KEYWORDS immune thrombocytopenia, ITP, long non-coding RNA (lncRNA), MALAT1, THRIL