

Long Non-Coding RNA PVT1 and Its Target miRNA-146a as Potential Prognostic Biomarkers in Rheumatoid Arthritis Patients

Abstract:

Objective: Long non-coding RNAs (lncRNAs) and their target microRNAs were documented in multiple studies to have a significant role in different joint disorders such as rheumatoid arthritis (RA) and osteoarthritis (OA). The current work aimed to determine the potential role of lnc-PVT1 and miR-146a as promising biomarkers to distinguish between RA, OA patients, and healthy individuals. Methods: The expression levels of lnc-PVT1 and its target miR-146a in the serum were measured for three different groups, including patients with RA (40), OA patients (40), and healthy controls (HCs) (40). Participating individuals were subjected to a full history investigation and clinical examination. Blood samples were tested for ESR, RF, CBC, as well as liver and renal functions. Serum was used to detect the relative expression levels of lnc-PVT1 and miR-146a and we correlated the levels with RA and OA activity and severity signs. Results: Lnc-PVT1 expression level was greater among patients with RA compared to that of OA patients, with a fold change median of 2.62 and 0.22, respectively ($p = 0.001$). The miR-146a fold change was significantly demonstrated between the RA, OA, and HCs groups. There was no correlation between both biomarkers with the disease activity scales (DAS28) of RA, the Knee injury Osteoarthritis Outcome Score (KOOS), or any sign of detection of the disease severity of OA. Conclusions: lnc-PVT1 and miR-146a could be considered as promising biomarkers for the diagnosis of RA and OA and may have an important role as therapeutic targets in the future.

Keywords: lncRNAs; miRNAs; lnc-PVT1; miR-146a; rheumatoid arthritis; osteoarthritis