Abstract

Hand osteoarthritis (OA) is a degenerative joint disease that causes pain, functional limitation and negatively affects the patients' quality of life. The most severe subtype of this disease is erosive OA. Erosive hand OA is characterized by an abrupt onset, inflammation and is linked to worse outcomes than non-erosive hand OA. Current methods do not allow early diagnosis or to distinguish between patients with different forms at disease onset. This could be changed by the utilization of biomarkers in clinical practice. Biomarkers are molecules released into circulation that reflect biological processes. The main goal of this study was to analyze the levels of circulating biomarkers with the aim to differentiate patients from healthy subjects and patients with erosive OA from patients with non-erosive disease. Serum concentrations of seven biomarkers and the expression of plasma microRNAs were determined. Patients with hand OA showed altered cartilage metabolism, increased levels of adiponectin, decreased levels of clusterin and a dysregulated expression of several microRNAs in comparison to the healthy population. Patients with erosive OA had lower levels of clusterin and decreased expression of miR-151-3p than those with the non-erosive form of the disease. These findings suggest the potential use of selected biomarkers for distinguishing between patients with hand OA and healthy individuals, but not between patients with diverse forms of hand OA.

Keywords: hand osteoarthritis, erosive osteoarthritis, biomarker, microRNA, clusterin