KSN SEOUL, KOREA 2023
April 27(Thu) - 30(Sun), 2023
Coex, Seoul, Korea

Submission No.: KRFP-9142
Session Title: KSN Research Fund Project
Date & Time, Place: April 28 (Fri), 10:40 - 12:40, Room 4

Circulating MicroRNA as a Marker for Scrub Typhus-associated Acute Kidney Injury

In O Sun
Presbyterian Medical Center, Korea, Republic of

Background: Circulating microRNAs (miRNA) are potential biomarkers for various renal diseases. However, there is limited data showing the potential role of miRNAs as diagnostic, prognostic, and therapeutic biomarkers for scrub typhus-associated AKI. This study attempted to identify the circulating miRNA signature for detecting acute kidney injury (AKI) in scrub typhus.
Methods: We prospectively enrolled 60 participants, including scrub typhus patients with AKI (AKI; n = 20) and without (Non-AKI; n=20) and healthy volunteers (HVs; n=20) in this study. Using RNA sequencing, we assessed the serum miRNA profiles of all participants. To identify the miRNAs predictive of scrub typhus-associated AKI, we also analyzed miRNAs among scrub patients with and without AKI.
Results: Using microarray, we identified small RNAs, including miRNAs, small nucleolar RNAs (snoRNAs), and small Cajal body-specific RNPs (scaRNAs). The proportion of miRNAs, snoRNAs and scaRNAs was higher in scrub typhus patients than in the HVs. Compared to HVs, we identified 120 miRNAs that were upregulated and 449 that were downregulated in non-AKI group. There were 101 miRNAs that were upregulated and 468 that were downregulated in patients with AKI when compared to the HVs. Furthermore, there were 11 upregulated and 110 downregulated miRNAs in AKI group when compared to non-AKI group. Among these miRNAs, we found 14 miRNAs, whose levels were significantly up- or downregulated in patients with AKI group compared to HVs and Non-AKI group.
Conclusion: Circulating miRNAs could be a surrogate marker for detection of scrub typhus-associated AKI diagnosis.