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PReS-FINAL-1016: Micro vesicles as a magnifying glass; uncovering potential biomarkers in juvenile idiopathic arthritis

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Introduction

Juvenile idiopathic arthritis (JIA) is a common chronic inflammatory diseases in childhood. Despite remission as a result of a plethora of treatment techniques, the chronic and relapsing nature of the disease requires continuous treatment which causes adverse side effects. It is important to uncover a biomarker that can efficiently predict patient responses to therapy as well as determine if patients will progress or regress as a result of treatment. Micro vesicles are key messengers containing many immune signaling molecules including cytokines, molecules known to play a major role in JIA.

Objectives

Due to the localized inflammation seen in JIA, we aim to analyze if micro vesicles isolated from patients can provide a source of biomarkers, giving specific information on molecules that can be targeted for treatment and allow the disease state to be monitored.

Methods

Micro vesicles where isolated from the blood and synovial fluid of patients with various subtypes of JIA. Vesicular protein profiles where then compared using Luminex technology.

Results

Pilot data showed that whole JIA patient plasma and synovial fluid has an inflammatory phenotype expressing high levels of TNF-R1, S100 A12, CXCL9 and CXCL10. This phenotype is also seen in exoquick isolated plasma micro vesicles however, when micro vesicles are isolated by ultra-centrifugation, this phenomenon disappears. Ultra-centrifugation isolated vesicles express lower levels of IL-6, MIF, TNF-R1, CXCL9 and S100 A12 when compared to whole plasma and healthy control vesicles. An analysis of exoquick background activity on Luminex MIA technology reveals a high level of interference.

Conclusion

Preliminary data indicates that micro vesicles isolated from JIA patient plasma by ultracentrifugation have low amounts of inflammatory cytokines. In addition, a more in depth investigation into exoquick activity shows that this product interferes with Luminex MIA technology. As a whole data seems to suggest that micro vesicle cytokine levels from individuals with JIA do not reflect the inflammatory process.

Disclosure of interest

None declared.

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