9 - Molecular Cell Biology

PO-105 - (23747) - PLASMA DERIVED SMALL EXTRACELLULAR VESICLES (SEVS) FOR EARLY DETECTION OF INSULINOMA

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Insulinoma is a rare neuroendocrine tumor of the pancreas that has become more common in recent decades, with a frequency of 0.7–4 occurrences per million. Due to the lack of clear diagnostic markers and the asymptomatic nature of the disease, diagnosis is frequently delayed. This highlights the need of specific and sensitive biomarker for early diagnosis. Small extracellular vesicles (sEVs) are known to facilitate tumor growth and metastasis due to their ability to carry tumor-promoting factors. So, this study planned to explore the plasma-derived sEV concentration in Insulinomas patients.

Characterization from plasma and tissue samples of Insulinoma patients and healthy controls was done by transmission electron microscopy (TEM) and nanoparticle tracking analysis (NTA). Validation was done by western blot using CD63, Flottilin and TSG101 as positive sEV markers and calnexin as negative markers.

The sEVs derived from plasma and tissue samples of Insulinomas and controls were double layered cup vesicles within a size range of 30-150nm. The Insulinomas patients exhibited significantly higher levels of sEVs compared to healthy controls ($p < 0.0001$), with 100% sensitivity. Additionally, sEVs concentration correlated positively with respect to disease severity as it revealed higher grades with metastasis and exhibit higher concentration of sEVs as compared to control.

This study, for the first time, explored the association between elevated plasma sEVs secretions in advanced cases of Insulinomas and highlights their potential as biomarkers for diagnosis and monitoring of disease.

Palavras-chave : Insulinomas, sEVs, Insulinoma