P428 / #917

POSTERS

IMPACT OF WHITE ADIPOSE TISSUE IN AD PATHOLOGY

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Aims: Alzheimer's disease (AD) is a complex disorder and multiple cellular and molecular mechanisms are involved in AD onset and progression. Recent evidences has suggested that metabolic alterations are an important pathological feature in disease progression in AD. Likewise, diabetes and obesity, two mayor metabolic illnesses, are risk factors for AD. These two overwhelming diseases are associated with a significant expansion of white adipose tissue. Here, we hypothesize that the white adipose tissue may serve as a key communicator organ between the brain and peripheral metabolic illnesses and affecting both types of disorders.
Methods: We used histological stains, immunohistochemistry and biochemical means to determine changes in the white adipose tissue from WT and db/db mice. Moreover, similar techniques were used in the brain of 3xTg-AD mice that received white fat pads from WT and db/db donors to determine any changes in amyloid and tau pathology.
Results: Our study shows that recipient 3xTg-AD mice from db/db fat pads develop profound changes in tau pathology due to increased CDK5 expression. Moreover, adipose tissue transplanted from donor WT and db/db mice into recipient 3xTg-AD mice indicate that db/db associated white fat tissue induced profound tau pathology changes in recipient 3xTg-AD mice.
Conclusions: Overall, our study demonstrate a novel important crosstalk between Alzheimer´s disease and diabetes type II through white adipose cells. A more profound understanding in these processes may turn in novel and promising therapeutic strategies for AD and metabolic illnesses.