TIME DEPENDENT EVALUATION OF POTENTIAL EARLY BIOMARKERS IN NON-OBESE DIABETIC MICE

Loyola, I. B., Colucci, J. A., Dulce, E. C; Departamento de Medicina, Disciplina de Nefrologia, Universidade Federal de São Paulo, São Paulo, Brazil.

It is well known that in the past years diabetes has become a worldwide epidemic, causing more than 5 million deaths and costing billions of dollars per year. In 2013 there were over 382 million people with diabetes, and approximately 50 percent of them were not properly diagnosed, which increases the chances of complications and its cost. We believe the reason for these alarming numbers is that it does not exist a method that is simple and effective enough to early detect and to monitor the disease. Our aim is to study three different proteins (Vitamin D Binding Protein, Alfa 1 Antitrypsin and Kinogen) that have the potential of becoming early biomarkers for diabetes. It have been previously described that these proteins affect the diabetes in particular ways and have their concentration altered within the disease. We are going to follow Non Obese Diabetic young mice to adulthood, using Swiss mice as our control, collecting different samples, such as blood and urine, in three periods of its life to analyze their protein profile using the proteomics analyzes. We are hoping to find any change that can lead us to an early biomarker that could diagnose the disease even before any physical or physiological consequences appear and that is also a simple way to monitoring its treatment. In non-published results our group has already seen that the concentration of Alfa 1 Antitrypsin and Vitamin D Binding Protein is diminished in diabetic Non Obese Diabetic mice, both of these proteins have demonstrated to have a protective role in diabetes. In the other hand, the concentration of Kinogen is increased, which has already been associated with early kidney damage. So, in conclusion, we expect to confirm those results and validate those three proteins as early biomarkers of diabetes mellitus.

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