PROTEOMIC BIOMARKERS OF PBMCS FROM MULTIPLE SCLEROSIS PATIENTS WITH VITAMIN D DEFICIENCY.

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Multiple Sclerosis (MS) is a severe demyelinating disease of the central nervous system, affecting young adults producing a progressive neurological dysfunction. We have observed a high number of MS patients with Vitamin D deficiency/insufficiency. The cellular and molecular underlying mechanisms of this condition and the consequence of Vitamin D deficiency on peripheral blood mononuclear cells (PBMC) protein expression from MS patients are not well understood. Due to its high prevalence in Puerto Rico and worldwide, there is an urgent need to study the synergism between this disorder and Vitamin D deficiency and its impact on the immune response. The purpose of this study is to reveal early biomarkers of disease status in the affected individual.

In the current study, proteins from PBMC MS patients with deficient/insufficient serum levels of Vitamin D and PBMC from control subjects were separated with 2 dimensional gel electrophoresis followed by mass spectrometry to establish homologies and dissimilarities in protein expression.

2D maps of the MS 2D maps indicated that a total of 110 proteins were modulated in MS patients to 391 proteins in the control subjects. Our results suggest that key markers of MS were induced in PBMC MS patients with deficient/insufficient serum levels of Vitamin D as compared to PBMC from control subjects.

The role of these proteins and their correlation with MS patients with Vitamin D deficiency/insufficiency in the respective populations will be explored in the future. This study would greatly facilitate designing future targeted proteomic experiments and elucidate MS condition associated with immune alterations in protein response pathways. Consequently, this may have diagnostics, therapeutic, and prognostic implications.

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