IGG GLYCOSYLATION IN ACHR-AB AND MUSK-AB MYASTHENIA GRAVIS IDENTIFIED BY LECTIN AFFINITY ELECTROPHORESIS

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Myasthenia gravis (MG) is a disease with disorder of transmission at the neuromuscular junction, characterized by weakness and fatigability of the skeletal muscle. The most frequent is acquired autoimmune form, with acetylcholine receptor autoantibodies (AchRAb) or muscle-specific tyrosine kinase autoantibodies (MuSKAb). Measurements of antibodies enable greater certainity and speed during the diagnostic procedure.

The carbohydrate moiety of human serum IgG shows high structural multiplicity, particularly associated with various inflamatory, malignant and autoimmune diseases. However, there are not much literature data about IgG glycosylation in MG, and no one based on lectin interaction.

The aim of the present work was examination of IgG glycosylation in sera of patients with two type of myastenia (AchRAb and MuSKAb positive) using lectin affinity electrophoresis with mannose-specific lectin ConA in the first dimension and monospecific anti-human IgG antibodies in second dimension. Control sera were tested in the same way.

AchRAb and MuSKAb were determined using radioimmunoassay (RIA), and positive sera were further examined. Two-dimensional electrophoresis of MG sera without lectin resulted in the pattern very similar to controls. This was not the case with sera from RA patients whith massive IgG precipitate or myeloma sera with characteristic monoclonal fraction, obtained in our previous research. However, lectin ConA in the first dimension made difference, binding IgG in MG sera with higher affinity (determined by retardation coeficient) compared to control sera. Those results indicated better exposure of the three-mannose core, due to fewer terminal galactose residues in IgG oligosaccharide chains in MG, compared to control.

Our results are in accordance with some literature data obtained by mass spectrometry. More data (the level of fucose or bisecting N-acetylglucosamine) will be obtained using other lectins. Such research can be significant because N-glycosylation of the IgG Fc moiety influences its biological activity by modulating the interaction with Fc receptors.