AB011. OA02.02: The importance of measuring acetylcholine receptor antibodies in thymomas

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Background: Myasthenia gravis (MG) is a severe auto-immune muscle disease with a potential deadly outcome due to a respiratory myasthenic crisis. A myasthenic crisis can be triggered by: sickness, pregnancy, (surgical) interventions and stress. MG is diagnosed by the neurologist by checking the case history, electromyography and the level of antibodies against the acetylcholine receptor (anti-AChR) in the serum. Previous research showed an average prevalence of 15–30% of MG in thymomas. In thymoma patients, anti-AChR-serum levels are not frequently measured. The presence of AChR-antibodies makes the diagnosis MG more likely and is easy to check in an ordinary check-up before thymectomy by a pulmonologist or surgeon. A positive titer should aware the clinical team for the possibility of a myasthenic crisis and warn the anesthetist to use an appropriate dose of muscle relaxants during a thymectomy. Patients without pre-surgical MG-symptoms but with positive anti-AChR-serum levels, are described as subclinical myasthenia gravis in this study. The aim of this study was to investigate the presence of subclinical myasthenia gravis in thymomas.

Methods: We retrospectively analyzed all 357 patients who underwent a thymectomy at the Maastricht University Medical Center (MUMC) between January 2005 and December 2017. Inclusion criteria were defined based on presence of a thymoma, thymectomy performed in the MUMC and age above 18 years old. MG was defined on positive anti-AChR-serum levels (>0.25 nmol/L), measured by RIA with serial serum dilutions (IBL, Germany). Clinical severity of disease was assessed by the criteria of the Myasthenia Gravis Foundation of America (MGFA). Subclinical MG was defined as positive anti-AChR-serum levels without neurological symptoms (MGFA 0) before the thymectomy. All the MGFA scores were examined by the same two clinicians.

Results: Of the 357 analyzed patients, we included 117 patients with a thymoma as pathological outcome (33%). Before the thymectomy, 102 patients were tested for anti-AChR-serum levels (87%): 71 patients had positive anti-AChR titers and MG symptoms (61%), 9 patients had positive anti-AChR-serum levels without MG symptoms (8%), 22 patients had negative anti-AChR-serum levels without MG symptoms (19%). In 15 patients (13%) no titer was measured prior to surgery for unspecified reasons. Of the 9 subclinical MG-patients, 8 patients developed MG symptoms after thymectomy (MGFA I-IVB). The symptoms were started at the time of thymectomy till 60 months after the thymectomy (mean time: 15 months). Only one subclinical MG-patient had no neurological symptoms at time of the study and is operated 8 months ago. Of the 15 patients who were not tested for MG, at least one patient developed MG symptoms 62 months after thymectomy.

Conclusions: The presence of positive anti-AChR-serum levels with symptoms of myasthenia gravis is not uncommon in thymomas. However, subclinical myasthenia gravis is less common but could give a risk for developing neurological symptoms or a myasthenic crisis during- or after an intervention. It is therefore important to test anti-AChR-serum levels in all suspected thymomas before thymectomy to provide personalized medicine and to prevent complications. More research is necessary to explain the late-onset symptoms of subclinical myasthenia gravis.

Keywords: Acetylcholine receptor antibodies; myasthenia gravis (MG); thymectomy; thymomas

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