Effect of Coexisting Autoimmune Disorders on Clinical Outcome in NMO Patients: An Analysis from National Inpatient Database

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Objective

Growing literature proposed an association between Neuromyelitis optica (NMO) and autoimmune disorders. Research related to clinical outcomes in NMO patients with coexisting autoimmune disorder has not been given sufficient attention. The resulting information gap adds further complexity to disease management. The objective of this study was to determine whether coexisting autoimmune disorder impacts clinical outcome in NMO patients.

Methods

We classified our patients with the diagnosis of NMO into two groups. NMO group (without coexisting autoimmune disorders) and NMO Plus group (with coexisting autoimmune disorders). We used Nationwide Inpatient Survey data files from 2006 -2010. We identified patients using ICD-9 diagnosis and procedure codes. We compare the rate of clinical outcomes (In hospital mortality, discharge to home, nursing facilities, length of stay and total charges) between NMO and NMO Plus group. All the in-hospital outcomes were analyzed after adjusting for potential confounders using multivariate analysis.

Coexisting Autoimmune Disorders

- Addison's disease
- Ankylosing spondylitis
- Asthma
- Autoimmune hemolytic anemia
- Alopecia areata
- Autoimmune hepatitis
- Celiac disease
- Crohns disease
- CIDP
- Chronic lymphocytic thyroiditis
- Dermatomyositis
- Diabetes mellitus Type 1
- Glomerulonephritis
- Goodpasture's syndrome
- Graves disease
- Guillain–Barré syndrome
- ITP
- Myasthenia Gravis
- Myxedema
- Mixed connective tissue disease
- Pemphigoid
- Pernicious anemia
- Polymyositis
- Primary Biliary cirrhosis
- Psoriasis
- Polyarteritis nodosa
- Rheumatoid arthritis
- Raynaud's disease
- Scleroderma
- Sjogrens syndrome
- Systemic lupus erhtyematosus
- Sarcoidosis
- Uveitis
- Ulcerative colitis
- Vitilgo
- Wegener's granulomatosis
- Autoimmune disease, not elsewhere classified

Results

- Of 4222 patients with NMO, 893 (21%) were in NMO Plus group.
- After adjusting for confounders, the odds of discharge to nursing facilities was significantly higher in NMO group compared to NMO Plus group (OR 1.57, 95% CI 1.01-2.51, p=0.05). In-hospital mortality was not different in both groups.
- Length of stay (9±28 days vs. 8±25 days, p=0.03) and mean hospital charges ($69152 ± $260576 vs. $53004± $136864, p<.0001) were significantly higher among NMO Plus group compared to NMO group.

Conclusions

- We found a considerable increase in discharge to nursing facilities in NMO group.
- Higher nursing facilities discharge in NMO group is because this group become more disabled from their NMO relapse then NMO plus group, and most likely explanation for this is that the NMO plus group is more likely to be on some immunotherapy (either prior to or during NMO diagnosis) that limits the impact of the NMO relapse.
- Other possible explanation is multidisciplinary management in NMO Plus group.