

Adrenal

ADRENAL - CORTISOL EXCESS AND DEFICIENCIES

Determinants of Quality of Life in Primary and Secondary Adrenal Insufficiency from Two Large Tertiary Care Centers in the United States

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Background: Patients with primary adrenal insufficiency (PAI) and secondary adrenal insufficiency (SAI) report impaired quality of life. Predictors of adverse outcomes include duration of disease, supraphysiologic glucocorticoid (GC) use, and presence of other comorbidities. There is limited evidence to suggest that quality of life is disproportionately affected in one subtype of adrenal insufficiency.

Objective: To identify determinants of quality of life in patients with PAI vs SAI.

Method: Survey study of patients with the diagnosis of AI between 2015 and 2019 was evaluated at two large tertiary medical centers in the United States. Collected variables included data on circumstances of AI diagnosis, symptoms, management, burden of disease, and overall well-being. Patients with AI due to exogenous glucocorticoid use were excluded.

Results: Patients with PAI (n=310, 65% women) were diagnosed at a younger age (37 ± 19 vs 48 ± 16 years, $p < .01$) than patients with SAI (n=255, 57% women). Patients with SAI were more likely not to understand their diagnosis (13% vs 4% in PAI, $p < .01$), or to report a discordant diagnosis (16% vs 9% in PAI, $p = .02$). Patients with PAI were on a higher dose of daily GC (23.8 mg vs 18.5 mg hydrocortisone (HC) equivalent, $p < .01$), with higher number of patients on $HC > 25$ mg/day (33% vs 15%, $p < .01$). Patients with PAI reported a higher compliance with wearing medical alert ID (79% vs 64%, $p = .01$) and higher availability of injectable GC (74% vs 58%, $p < .01$). Patients with PAI reported a higher frequency of at least one adrenal crisis within the last 12 months that required self-injectable GC (32% vs 16%, $p < .01$), or prompted ER visits (56% vs 29%, $p < .01$) compared to those with SAI. Nevertheless, patients with PAI were more likely to report good general health (78% vs 65% in SAI, $p < .01$). When adjusted for current age, sex, duration of disease, supraphysiologic GC use, number of current symptoms and recent adrenal crises, patients with SAI had HR of 2.6 (CI 95% 1.5-4.3) for poor health, 1.6 (CI 95% 0.95-2.8) for physical limitations, 1.7 (CI 95% 1.1-2.7) for fatigue, and 2.7 (CI 95% 1.5-4.9) for social limitations compared to those with PAI.

Conclusions: Patients with PAI receive higher daily GC and experience a higher number of adrenal crises when compared to patients with SAI. However, patients with PAI report a better general perception of health, possibly due to a more robust knowledge of their disease and higher comfort level managing AI. More effort is needed to ensure

patients with AI are appropriately educated regarding their medical condition and therapy.

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Risk for Hypercoagulability Among Patients with Cushing Syndrome. From the National Inpatient Sample.

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Background: Patients with Cushing syndrome are at higher risk for hypercoagulability due to elevated levels of pro-coagulants and impaired fibrinolysis. **Objective:** We aimed to examine the association of Cushing syndrome and hypercoagulability using a large national database. **Methods:** The National Inpatient Sample (NIS) was queried for all patients diagnosed with Cushing syndrome during the year 2011-2015. Patients with Cushing syndrome were identified using the international classification of diseases (ICD-9) code "2550". The control group was randomly selected from the same database in a 4:1 ratio matched by age and gender. Hypercoagulable state was defined by presence of either ICD-9 codes "28981 or 28982" for primary and secondary hypercoagulable state as well as personal history of venous thrombosis or pulmonary embolism identified with ICD-9 codes "V1251 and V1255" respectively. Patients who were diagnosed with autoimmune diseases, solid tumors, metastatic cancer, as well as those who were bed-bound were excluded. Multivariable logistic regression with adjustment for patient's demographics, socioeconomic factors, comorbidities and hospital factors was used to obtain Cushing syndrome related risk for hypercoagulability. Subgroup analysis was performed based on gender, race and age groups; young adults (aged 18-35 years), middle-aged (> 35-<55 years) and older adults (aged > 55 years). **Results:** A total of 43,157 patients diagnosed with Cushing syndrome were identified. The mean age was 53.9 years (standard error of the mean 0.1). Majority of patients were females (75.2%) and of Caucasian race (74.6%). The prevalence of hypercoagulability was markedly higher among patients with Cushing syndrome 10 % vs 4%, $p < 0.001$. On multivariable analysis, presence of Cushing syndrome correlated with significantly higher risk for hypercoagulability with adjusted odd ratio (a OR) 2.20 [95%CI: 1.98-2.44] $p < 0.001$. The risk for hypercoagulability was highest among young patients (age ≤ 35) with a OR 6.02 [95%CI: 4.06-8.94] $p < 0.001$ and among Hispanics with a OR 3.66 [95%CI: 2.38-5.64] $p < 0.001$. No significant gender difference on risk for hypercoagulability. **Conclusion:** Patients with Cushing syndrome are at higher risk for hypercoagulability. This risk is markedly higher among young patients and among Hispanics. Particular attention for early detection and prevention of venous thromboembolism in patients with Cushing Syndrome is advisable.