whereas episodes and duration of hypotension did not differ between the two groups. There was no perioperative mortality whereas one patient had intraoperative ST depression on the electrocardiogram. The drug-related adverse effects were pedal edema (1 in amlodipine), dizziness (1 in prazosin), and tachycardia (6 in prazosin and 3 in amlodipine). **Interpretation:** Preoperative blockade with amlodipine was more efficacious than prazosin in preventing intraoperative HDI in PPGL. Larger studies that compare preoperative blockade with amlodipine and both competitive and noncompetitive α-blockers inPPGL patients of various biochemical phenotypes are warranted.

Adrenal

ADRENAL – CLINICAL RESEARCH STUDIES

Prevalence of Suppressed Morning Serum Cortisol and Its Relationship With Cumulative Glucocorticoid Exposure in a Moderate-Severe Asthma Patient Cohort

Julie Martin-Grace, MB BCh BAO[1], Vincent Brennan*, MB BCh BAO[1], Christopher Mulvey, MB BCh BAO[2], Garrett Greene, PhD[2], Geraldine Collier, BSc[1], Thomas Mc Cartan, MB BCH BAO MSc[2], Lorna Lombard, BS[2], Joanne Walsh, MSc[1], Sinead Plunkett, BSc[1], Elaine Mac Hale, MSc[1], Mark Sherlock, MB, BCh, MD, PhD[3], Richard Costello, MB BCh BAO, MD[1].*
[1]Beaumont Hospital, Dublin, Dublin, Ireland, [2]Royal College of Surgeons in Ireland, Dublin, Ireland, [3]Beaumont Hospital and Royal College of Surgeons in Ireland, Dublin, Ireland.

The extent to which inhaled glucocorticoid exposure (ICS) contributes to risk of adrenal insufficiency (AI) is not fully understood. The aim of this study was to establish the relative contribution of both oral (OCS) and inhaled (ICS) glucocorticoid exposure to risk of AI.82 patients with severe asthma treated with fluticasone propionate (FP) who participated in a 32-week prospective randomised trial INCA SUN, (NCT02307669) were studied. Cumulative ICS exposure was calculated using a unique digital device, which creates an acoustic recording of inhaler adherence and technique. Analysis of this data provides an exact measure of the ICS dose received by each patient. Morning serum samples collected during the final study visit (week 32) were analysed for serum cortisol concentration (cortisol) using Roche Elecsys Cortisol II immunoassay. Participants were then stratified into three groups based on cortisol concentration to predict risk of AI; cortisol < 100nmol/l (high risk), 100–315 nmol/l (indeterminate risk) and > 315 nmol/l (low risk) based on locally derived reference ranges. 21% participants were classified as low risk, 18% as high risk and the remaining 61% at indeterminate risk of AI. Median morning cortisol in the low risk group was ten-fold higher than those in the high risk group (380 vs 38.5 nmol/l, p=0.001). OCS exposure was a significant predictor of risk of AI (OR 1.1 [1.03–1.17] per mg/kg increase in prednisolone exposure, p=0.004)). Participants at high risk were more likely to be on maintenance OCS (33% vs 0%, p=0.015) and had a greater median cumulative OCS exposure over the study period (7.55 vs 0.66 mg/kg prednisolone, p=0.002). ICS exposure was also associated with risk of AI. Participants at high risk AI had a greater adherence to ICS therapy (78% vs 62%, p=0.049) and greater cumulative received ICS dose over the study duration than those at low risk AI (178.2 vs 127.9 mg, p=0.036). ICS exposure remained a significant predictor of AI even when OCS exposure is controlled for (OR 2.49 [1.06–5.82] per 1mg/kg increase in FP exposure). Both the asthma control test (ACT) & asthma quality of life questionnaire (AQLQ) scores correlate with morning cortisol concentration (ACT r=0.2, p=0.068, AQLQ r=0.26, p=0.019). Interestingly, participants with cortisol < 100nmol/l reported worse asthma control (ACT score 16 vs 20, p=0.07) and a lower AQLQ score (4.1 vs 5.8, p=0.02) than the low risk group despite objectively better lung function (FEV1 90.6 vs 77.6% predicted). Our data suggests that both cumulative oral and inhaled glucocorticoid exposure contribute independently to cortisol suppression and risk of AI. The discrepancy between objective (FEV1) and more subjective measures of asthma control (ACT score) in the high risk group suggests that undiagnosed AI, as well as other non-airway co-morbidities, may contribute to the symptom burden experienced by these patients.

Adrenal

ADRENAL – CLINICAL RESEARCH STUDIES

Quality of Life and Its Determinants in Patients With Adrenal Insufficiency: A Survey Study From Three Tertiary Centers in the United States

Dingfeng Li, MD, MSc[1], Malavika Suresh, MB Bch BAO[1], Tobias Else, MD[2], Sarah Brand, MPH[2], Oksana Hamidi, DO[3], Ashleigh Westfall, PA-C[3], Anand Vaidya, MD, MMSc[4], Irina Bancos, MD[1].
[1]Mayo Clinic, Rochester, MN, USA, [2]University of Michigan, Ann Arbor, MI, USA, [3]UT Southwestern Medical Center, Dallas, TX, USA, [4]Brigham and Women's Hospital, Boston, MA, USA.

Context: Quality of life (QoL) is impaired in patients with chronic adrenal insufficiency (AI) despite standard glucocorticoid (GC) replacement therapy. Current evidence on the determinants of QoL is scarce and limited in very few European countries, and how it relates to AI subtypes remains underexplored.
Objective: We conducted the first survey study in patients with AI in the USA to determine the correlations between clinical parameters, adverse outcomes, patient education, socioeconomic factors, and QoL in different subtypes of AI.
Design, Setting and Participants: Cross-sectional survey study of 529 patients with AI between 2015 and 2020, at three tertiary centers in the USA.
Intervention: Patient-centered questionnaires.
Main Outcome Measures: QoL scores using Short-Form 36.
Results: Of 529 participants, 223 (42.2%) had primary AI (PAI), 190 (35.9%) had secondary AI (SAI), and 116 (21.9%) had glucocorticoid induced AI (GIAI). Median age at the time of survey was 58 years (IQR: 43–68), 342 (64.8%) were women and 483 (91.3%) were Caucasians. Median duration of AI was 6 years (IQR: 3–14.5), longest in patients with PAI (11 vs 4 years in SAI and GIAI, p=0.0001). Overall, Physical Composite Summary (PCS) score was lower than the Mental Composite Summary (MCS) (38.1±12.9 vs 46.5±11.8). Across the eight dimensions, each individual decade- and sex-adjusted Z-score (using the normative data of USA population) in patients with PAI was significantly