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New-Onset Cardiomyopathy With and Without Atrial Fibrillation

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Conclusion: With 20% or more of all inpatients 65 and older discharged from the hospital to skilled home care, the impact of this adapted and bundled model of care is significant. Given average length of hospital stay is 3 days, there is less time to deliver HELP protocols in the hospital setting. The findings of this study provide support for extending this model of care beyond acute care and replicating the study.

Effect of a Novel Long-Acting Neutralizing Monoclonal ACTH Antibody (ALD1611) in the Neonatal Rat: Basal and Corticosterone Responses to ACTH and Hypoxic Stress

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Background: The control of steroidogenesis in the neonatal adrenal gland is of great clinical interest. We have demonstrated that the newborn rat [postnatal day (PD) 2] exhibits a corticosterone response to hypoxia in the absence of an increase in plasma ACTH measured by radioimmunoassay, whereas the corticosterone response to exogenous ACTH is intact. By PD8, the corticosterone response to hypoxia is ACTH-dependent. This apparently ACTH-independent response to hypoxia in the newborn rat may be due to an increase in a bioactive, non-immunoassayable form of ACTH.

Purpose: To evaluate the ACTH-independent response to hypoxia in newborn rats using a novel, specific neutralizing antibody (ALD1611) to ACTH.

Methods: Rat pups (N=6–14 per group) were given ALD1611 (20 mg/kg, intraperitoneal) or vehicle on the morning of PD1, PD7, or PD14; 24 hours later (on PD2, PD8, or PD15), baseline blood samples and adrenal glands were obtained. Then, porcine ACTH [1-39] was injected (20 mcg/kg, subcutaneous) or hypoxia (8% O2) was administered, and blood was sampled for ACTH and corticosterone and adrenal glands collected for quantitative polymerase chain reaction (qPCR) 60 minutes later.

Results: Treatment with ALD1611 decreased baseline corticosterone and eliminated the corticosterone response to ACTH or hypoxia in all age groups. This occurred despite the fact that hypoxia did not induce a statistically significant increase in plasma ACTH in the PD2 pups. In additional experiments, we found that the magnitude and duration of the attenuation of the adrenal response to ACTH injection or hypoxia was related to the dose of ALD1611 (0.1 mg/kg to 20 mg/kg, intraperitoneal). ALD1611 also blocked stress-induced changes in the expression of mRNAs (by qPCR) of critical adrenal steroidogenic pathway genes.

Conclusion: ALD1611 is highly effective in decreasing basal plasma corticosterone and in blocking the adrenocortical response to exogenous ACTH and hypoxic stress in the neonatal rat. We conclude that, despite the minimal increase in plasma ACTH, the adrenal response to hypoxia is ACTH-dependent at all age groups, suggesting stress-induced increases in alternate biologically active forms of ACTH and/or hypoxia-induced increase in adrenal sensitivity in the PD2 neonatal rat. ALD1611 may prove useful in attenuating ACTH-dependent adrenal steroidogenesis in vivo and eventually in treated patients with ACTH-dependent Cushing’s syndrome.

New-Onset Cardiomyopathy With and Without Atrial Fibrillation

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Background: Atrial fibrillation (AF) is the most common arrhythmia and is often associated with cardiomyopathy (CM) and heart failure. There has been little research performed to assess whether there are any differences in patient profile, comorbidities, presenting complaints, and electrocardiographic (ECG) or laboratory characteristics and outcomes between patients who have AF at presentation or preceding the diagnosis of new-onset CM (defined as left ventricular ejection fraction ≤ 40%) and patients who are diagnosed with new-onset CM without any preceding atrial dysrhythmias.

Purpose: To assess differences among patients with new-onset CM (LVEF ≤ 40%) with AF and without AF.

Methods: We used a balance research design to compare patients diagnosed with new-onset CM with AF (N=196) and without AF (N=197). Demographic characteristics, comorbidities, diagnosis, ECG characteristics, laboratory marker variables, and outcome data were described using appropriate descriptive statistics. The two groups of patients with and without AF were compared using chi-squared and independent t-test. An alpha of 0.05 was used for all statistical tests, and all statistical analysis was done using SAS version 9.4 (SAS Institute Inc., Cary, NC).

Results: Patients in the AF-CM group were older (73.51 vs 64.18 years; P<0.001) and more likely to be male (63.3% vs 49.2%; P<0.005), of Caucasian ethnicity (96.9% vs 76.7%; P<0.001), and have a history of hypertension (70.4% vs 53.3%; P=0.0005) or coronary artery disease (33.7% vs 20.8%; P=0.0042). They were more likely to be diagnosed as an outpatient (35.7% vs 10.2%; P<0.0001); if presenting to the hospital, they were much more likely to have congestive heart failure as their presenting complaint (61.1% vs 38.4%; P<0.0001). They also were more likely to have low voltage on their presenting ECG compared to the control group (39% vs 27.6%; P=0.0003). Troponin (0.91 vs 0.27; P=0.0067) and brain natriuretic peptide (771.3 vs 1015.6; P=0.021) values were significantly lower in the AF group. Patients in the AF-CM group showed an increased risk of death: 30.1% vs 20.8% (P=0.0345).

Conclusion: Patients with atrial fibrillation and new-onset cardiomyopathy differ from patients without atrial fibrillation in demographic characteristics, comorbidities, venue of diagnosis, presenting complaints, ECG characteristics, laboratory markers, and prognosis. This may have implications for diagnosis, work-up, and treatment of these patients.

Validation of Stroke Network of Wisconsin (SNOW) Scale at Aurora Health Care


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