CHARACTERIZING PREDNISONE REGIMENS FOR TREATMENT OF CARDIAC SARCOIDOSIS

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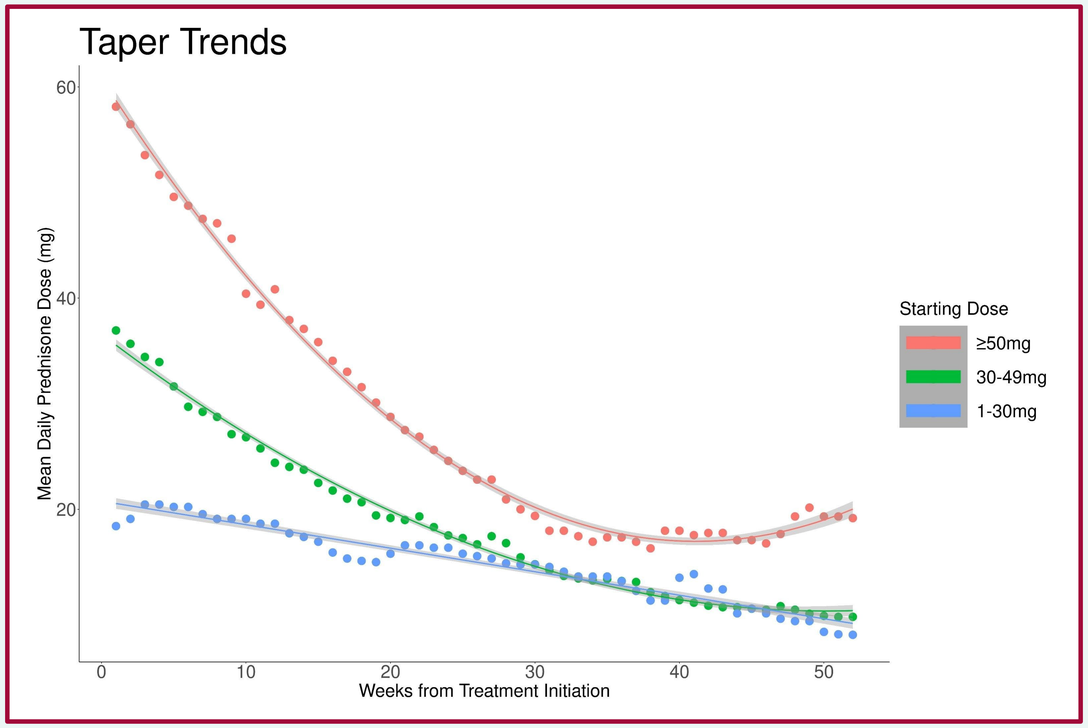
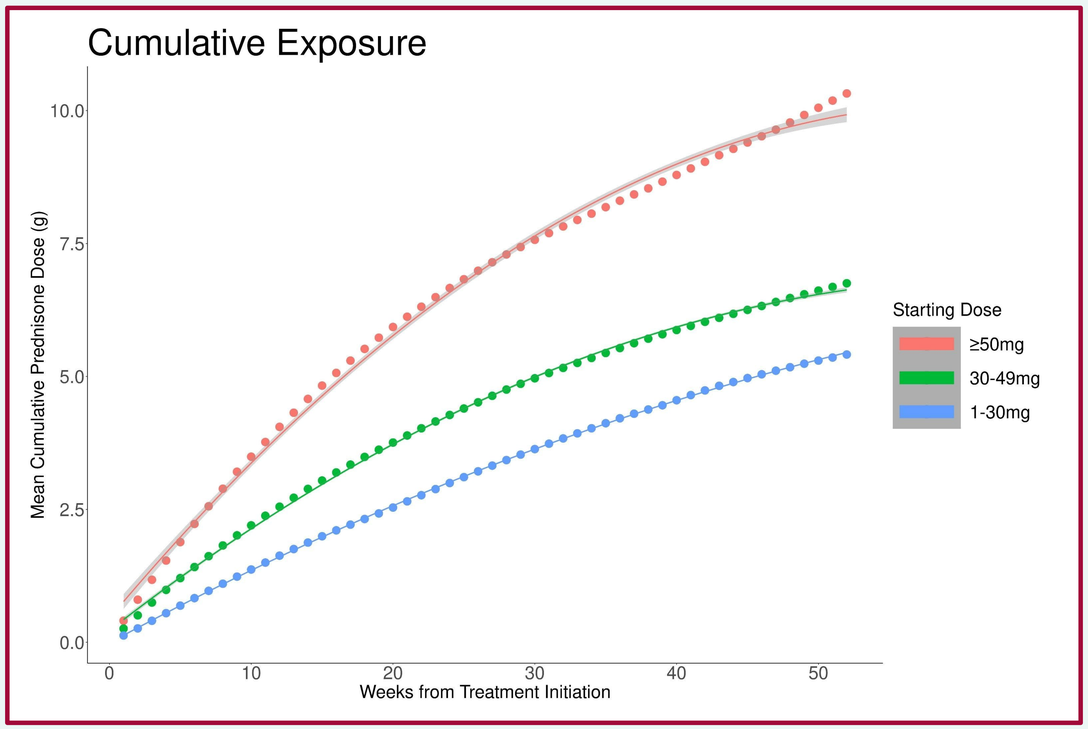
INTRODUCTION

Corticosteroids are the mainstay treatment for cardiac sarcoidosis (CS), which manifests clinically in about 5% of sarcoid patients. Current comparisons of steroid regimens in CS focus on starting dose and rarely describe taper rates or expected cumulative exposure. This study characterizes several prednisone regimens for CS to strengthen frameworks for defining treatment goals.

METHOD

We queried a registry of 1,403 patients referred to the Hospital of the University of Pennsylvania for positron emission tomography (PET) investigation of CS. We performed chart review of 98 patients with myocardial inflammation on initial PET who were treatment-naïve, initiated on prednisone for CS between 2008 and 2019, and whose dose was known throughout a 52-week period following treatment initiation. 65.3% of the patients were male (n = 64) and 27.6% were female (n = 27). Mean age was 53±9 years. Patients were stratified by starting dose into low-dose (LD, n = 22) (<30 mg/day), moderate-dose (MD, n = 52) (30-49 mg/day), and high-dose (HD, n = 24) (≥50 mg/day) groups. Linear mixed models were fit for both cumulative dose and taper rate and included fixed effects for the interaction between week number with a quadratic term and starting dose bin. A random intercept term was included per patient to account for correlated repeated measures. ANOVA was performed on both models to assess the effect of the interaction term. Degrees of freedom were calculated using Satterthwaite's method. We performed post-hoc multiple-comparisons analysis of estimated marginal means to compare taper rates and cumulative exposure using Tukey's method. All analyses were performed using R Statistical Software v4.1.3.





RESULTS

The interaction term was a significant predictor of both cumulative dose ($F_{4, 4992} = 259.04$, $p < 0.0001$) and taper rate ($F_{4, 4992} = 254.26$, $p < 0.0001$). Cumulative exposure over 52 weeks (mean±SD) increased proportionally with starting dose: HD (10.3±3.6 g) vs. MD (6.8±2.7 g), $p < 0.0001$, HD vs. LD (5.4±2.4 g), $p < 0.0001$, and MD vs. LD, $p = 0.0064$. Taper rate (mean±SD) was inversely proportional to starting dose: HD (-0.764±4.19 mg/week) vs. MD (-0.532±3.44 mg/week), $p < 0.0001$, HD vs. LD (-0.202±3.16 mg/week), $p < 0.0001$, and MD vs. LD, $p < 0.0001$.

CONCLUSION

Starting dose is related to cumulative exposure and taper rate. Our models did not account for disease severity or demographic factors. Future studies should investigate the association between cumulative exposure and adverse events and the relationship between taper rate and disease relapse.

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