

Extended Inpatient Monitoring for Sustained Tolerance to Oral Steroid Therapy in Acute Severe Ulcerative Colitis May Be Unnecessarily Prolonging Length of Stay

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BACKGROUND

Acute severe ulcerative colitis (ASUC) is a potentially life-threatening emergency that almost always requires inpatient management. A standard care pathway includes early initiation of scheduled intravenous corticosteroids upon admission. If deemed responsive to treatment, patients are eventually transitioned to oral steroids which they will continue to take as an outpatient. There is no clear guideline on whether these patients should remain in the hospital following the transition from IV to PO steroids to be monitored for any worsening of symptoms that would warrant re-escalation of therapy. Our main objectives were thus two fold: 1) compare rates of oral steroid transition failure and readmission between ASUC hospitalizations where extended inpatient monitoring was implemented vs where it was not implemented 2) identify predictors of oral steroid transition failure such that extended inpatient monitoring may be selectively, rather than universally, implemented.

METHODS

Retrospective chart review of all ulcerative colitis (UC) related admissions at UCSF from 2014 – 2022. All adult patients with the primary dx of UC receiving IV corticosteroids were included. Patients who did not transition to PO corticosteroids during the hospitalization or on discharge were excluded. Patients who received colectomy during the hospitalization were only included if the surgery was pursued after a failed trial of PO corticosteroids. Data were analyzed using STATA v16.1.

DISCUSSION

Through our study we found that patients who transitioned to oral corticosteroids with or without extended monitoring had low rates of oral corticosteroid failure. Patients who were deemed clinically appropriate to forego extended inpatient monitoring had particularly low rates of oral steroid failure. Patients who were selected for extended inpatient monitoring by their provider team were more likely to experience oral steroid failure. This leads us to believe that the practice of holding off discharge for at least a day solely to monitor for sustained tolerance to steroid de-escalation, may not only be unnecessarily prolonging length of stay but may also be inflicting more harm by leading to more instances of clinical decompensation. None of the characteristics we evaluated seemed to be clear predictors for oral steroid failure – therefore clinicians should generally consider a more accelerated hospital course when managing ASUC. Future studies may want to consider prospective trials to further assess this apparent lack of association. We ultimately hope the inferences drawn from this study can help resolve uncertainties regarding this particular phase of ASUC management and ultimately help influence clinical guidelines on discharge protocol.

RESULTS

Table 1: Distribution of patient, disease, and clinical management characteristics				
Variable	Received non-extended inpatient monitoring (monitored < 24h post-transition to PO steroids) (n = 68)	Received extended inpatient monitoring (monitored ≥ 24h post-transition to PO steroids) (n = 80)	P-value	Total (All hospitalizations) (n = 148)
Patient Characteristics				
Age, median (IQR)	34.5 (44.5 – 25)	30.5 (41.5 – 24)	0.32	32 (43 – 24)
Female, n (%)	44 (65%)	52 (65%)	0.97	96 (65%)
On oral steroid therapy within 30 days prior to admission, n (%)	42 (62%)	52 (65%)	0.97	96 (64%)
Previous hospitalization for any reason within 90 days prior to admission, n (%)	15 (22%)	27 (34%)	0.12	42 (28%)
No biologic exposure prior to admission (Biologic Naïve), n (%)	31 (46%)	26 (33%)	0.10	57 (39%)
Exposure to only 1 biologic prior to admission, n (%)	18 (26%)	31 (39%)	0.11	49 (33%)
Exposure to at least 2 biologics prior to admission, n (%)	19 (28%)	23 (29%)	0.91	42 (28%)
Disease Characteristics				
Mayo endoscopic colitis score (mild-moderate vs severe), n (%)	Mild-mod = 20 (42%) Severe = 28 (58%)	Mild-mod = 15 (26%) Severe 43 (74%)	0.13	Mild-mod = 35 (33%) Severe = 71 (67%)
Maximum heart rate within first 24h of admission > 90 bpm, n (%)	48 (71%)	61 (76%)	0.44	109 (74%)
Maximum CRP level within first 24h of admission > 45 mg/L, n (%)	34 (50%)	41 (51%)	0.88	75 (51%)
Serum albumin < 3.5 g/dL on admission, n (%)	44 (71%)	52 (73%)	0.77	96 (72%)
Clinical Management Characteristics				
Maximum 24h IV methylprednisolone dose, (40mg vs 60mg), n (%)	40mg = 56 (82%) 60mg = 12 (18%)	40mg = 61 (76%) 60mg = 19 (24%)	0.36	40mg = 117 (79%) 60mg = 31 (21%)
Administration of opiates during hospitalization, n (%)	31 (46%)	34 (43%)	0.71	65 (44%)
Administration of biologics or other rescue therapy during hosp., n (%)	41 (60%)	58 (73%)	0.12	99 (67%)
Hospital day when first trial of PO steroids following IV steroids was started, median (IQR)	5 (7 – 4)	6.5 (8 – 5)	0.01*	6 (7 – 4)
Failure to transition from IV to PO steroids, n (%)	2 (3%)	9 (11%)	0.05*	11 (7%)
Readmission for ASUC within 30 days of discharge, n (%)	4 (6%)	5 (6%)	0.93	9 (6%)

Table 2: Univariable Analyses of Characteristics Associated with Failure to Transition from IV to PO Steroids			
Variable	Odds Ratio	95% CI	P-value
Age	0.94	0.87 – 1.00	0.06
Female	0.95	0.27 – 3.43	0.94
On oral steroid therapy within 30 days prior to admission	1.02	0.28 – 3.65	0.98
Previous hospitalization within 90 days prior to admission	1.47	0.41 – 5.32	0.55
No biologic exposure prior to admission (Biologic Naïve)	0.59	0.15 – 2.31	0.45
Exposure to only 1 biologic prior to admission	2.60	0.75 – 8.97	0.13
Exposure to at least 2 biologics prior to admission	0.53	0.11 – 2.58	0.43
Mayo endoscopic colitis score (severe)	Severe = 3.05	Severe = 0.35 – 26.36	0.312
Maximum heart rate within first 24h of admission > 90 bpm	6.62	1.05 + Inf*	0.04*
Maximum CRP level within first 24h of admission > 45 mg/L	2.75	0.70 – 10.79	0.15
Serum albumin on admission < 3.5 g/dL	1.61	0.33 – 7.96	0.56
Maximum 24h IV methylprednisolone dose (60mg)	60mg = 1.45	60mg = 0.36 – 5.81	0.60
Administration of opiates during hospitalization	6.63	1.38 – 31.85*	0.02*
Administration of biologics or other rescue therapy during hosp.	5.45	0.68 – 43.90	0.11
Hospital day when first trial of PO steroids following IV steroids was started	0.97	0.74 – 1.26	0.80
Inpatient monitoring ≥ 24h post-transition to PO steroids	4.24	0.88 – 20.37	0.07

Table 3: Multivariable Logistic Regression of Characteristics Associated with Failure to Transition from IV to PO Steroids			
Variable	Adjusted OR	95% CI	P-value
On oral steroids within 30 days prior to admission	0.54	0.10 – 2.97	0.48
Mayo endoscopic colitis score (severe)	Severe = 2.01	Severe = 0.15 – 26.75	0.60
Maximum CRP within first 24h of admission > 45 mg/L	5.64	0.56 – 56.72	0.14
Serum albumin on admission < 3.5 g/dL	0.55	0.06 – 5.26	0.60
Administration of opiates during hospitalization	4.09	0.61 – 27.54	0.15
Inpatient monitoring ≥ 24h post-transition to PO steroids	2.7	0.40 – 18.35	0.31

*Controlling for oral steroid recent oral steroid use prior to admission, Mayo endoscopic colitis score, maximum initial CRP, hypoalbuminemia on admission, administration of opiates, and inpatient monitoring for at least 24h after de-escalation of steroid therapy

