May 14th, 11:30 AM - 1:30 PM

Infliximab as Rescue Therapy in Pediatric Severe Colitis

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IRB Number: 14010021

Describe role of Submitting/Presenting Trainee in this project (limit 150 words):
Kayla Briggs was responsible for data collection, data analysis, and abstract preparation.

Background, Objectives/Goal, Methods/Design, Results, Conclusions limited to 500 words

Background: Infliximab has been shown to be effective in achieving clinical remission in patients with ulcerative colitis (UC) refractory to conventional therapy. However, there is conflicting data in the literature regarding its effectiveness as rescue therapy in acute severe colitis. Furthermore, most studies were conducted in adults, and pediatric onset of inflammatory bowel disease (IBD) is associated with more severe disease that may be less amenable to rescue therapy.

Objectives/Goal: We reviewed our experience with pediatric severe colitis and report outcomes following attempted rescue therapy with infliximab.

Methods/Design: A retrospective review was conducted of patients with UC or indeterminate colitis who received rescue infliximab therapy at our institution from January 2000-January 2019. Rescue infliximab therapy was considered if a child failed non-biologic therapy or progressed to fulminant or toxic colitis. Primary outcome was failed therapy resulting in colectomy. Secondary outcomes included number of admissions, antibiotic utilization, total parental nutrition (TPN) days, number of blood transfusions, imaging, number of laboratory tests, days of intravenous steroids, and length of stay. Statistical analysis was performed using STATA and a *p*-value of <0.05 determined significance.

Results: Thirty patients met inclusion criteria. The median age at administration of rescue infliximab treatment was 14.5 years [IQR 13, 17]. Rescue therapy with infliximab was successful in 33% (n=10), while 67% (n=20) underwent colectomy. Comparisons of clinical characteristics of those with

successful infliximab rescue versus those who underwent colectomy are shown in Table 1. Children on maintenance steroids were less likely to have successful rescue with infliximab and require colectomy (p=0.03). Possibly indicative of rescue therapy, children requiring colectomy had a longer hospital stay (p=0.03), more abdominal radiographs (p=0.01), and were on a longer duration of antibiotics (p=<0.01) compared to children who were successfully rescued with infliximab. There was no difference between children successfully salvaged with infliximab and those who required colectomy with regards to vital signs or lab abnormalities, specifically white blood cell count and electrolyte values.

Conclusions: Infliximab as rescue therapy is ineffective in two-thirds of pediatric patients with severe colitis and does not have the potential for long-term cure. A response is more likely when patients are not on steroids at the time of admission.

Table 1: Comparison of clinical characteristics in pediatric patients with successful infliximab rescue versus those who required colectomy. Continuous variables are expressed as medians with inter-quartile ranges.

		Successful Rescue N=10	Colectomy N=20	p-value
Clinical Features	**Age (years)**	13 [7, 15]	13.5 [11, 15.5]	0.89
	Toxic Colitis	20%	45%	0.25
	Fever >38	10%	25%	0.63
	HR>120	30%	45%	0.69
	WBC >10.5	60%	80%	0.38
	Electrolyte Disturbance	33%	65%	0.23
	Hypotension	50%	25%	0.23
Steroids	**Maintenance Steroids**	60%	95%	**0.03**
	Steroid Days	9.5 [2, 20]	26.5 [7, 36.5]	0.09
Hospital Course	**LOS (days)**	14 [3, 27]	27.5 [13.5, 35]	**0.03**
	Antibiotic Days	0 [0, 0]	10 [3, 16.5]	**<0.01**
	Central Line	50%	85%	0.08
	Number of KUBs	0.5 [0, 2]	2.5 [1, 4]	**0.01**

*HR = heart rate, WBC = white blood cell count, LOS = length of stay, KUB = abdominal radiograph