Prior Authorization Requirements Delay Biologic Initiation and Increase Serious Adverse Events in Pediatric Inflammatory Bowel Disease

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BACKGROUND

- Biologic therapies have become the primary component of medical therapy in moderate to severe IBD.
- Despite high costs, biologics are cost effective in IBD.[1,2]
- Biologic initiation includes several phases, including:
  - Physician recommendation and patient contemplation
  - Pre-biologic laboratory screening
  - Prior authorization (PA)
  - Scheduling of an initial dose.
- Insurers have instituted PA policies to combat costs, which may prolong biologic initiation with adverse clinical consequences[3,4]
- **We hypothesize that** PA requirements 1) prolong biologic initiation time and 2) are associated with increased risk of serious adverse events (SAE) within 180 days of physician biologic recommendation.

METHODS

- **Study Design**: Single-center, retrospective cohort of pediatric (age 1-18 years) IBD patients initiating new biologic therapies.
- **Exclusion Criteria**: Biologic initiated at outside institution, via clinical trial, as post-operative prophylaxis, or as inpatient. Those with insurance changes during PA process or missing data.
- **Covariables:** demographics, anthropometrics, IBD phenotype, concomitant and prior medications, and prior IBD complications.
- **Exposure of Interest:** Prior authorization requirement
- **Outcomes included:**
  - **Biologic Initiation Time (BIT):** Defined as time from Physician Biologic Recommendation to Receipt of First Dose
  - **Serious Adverse Events:** Defined as hospitalization, surgery, or ED Visit within 30, 90, and 180 days of physician recommendation
  - **Corticosteroid Dependence**: Defined as requiring corticosteroids at 90 days from physician recommendation
- **Statistical analyses:**
  - **Multivariable linear regression** was employed to measure the association between PA requirement and biologic initiation time
  - **Propensity score methods** were employed to measure association between PA requirement and serious adverse events and corticosteroid dependence at 30, 90, and 180 days from physician biologic recommendation.
  - **Sensitivity analyses** investigated exposures:
    - Insurance type (private vs public)
    - Complicated PA process (step-therapy, peer-to-peer, etc)

RESULTS

Cohort Summary:

- 190 of 537 patients screened for inclusion were included in analyses.
  - 136 had private insurance
  - 141 required PA,
  - 25 had complicated PA processes

Biologic Initiation Time:

- Median BIT among patients requiring PA was 25 days (IQR 16-38) with PA phase equaling 8 days (IQR 5-16).
- Median BIT among patients not requiring PA was 13 days (IQR 9-28).
- PA requirement was associated with an increase in BIT by 10.1 days after adjusting for other covariables (Table 1).
- Complicated PA processes were associated with a 14.3 day increased in BIT.
- Insurance type was not significantly associated with biologic initiation time.

PA and Adverse events

- At 30, 90, and 180 days from physician recommendation, 6.8%, 14.2%, and 23.7% of the cohort had at least one SAE, respectively.
- The majority (69%) of SAEs were hospitalizations.
- Results of inverse probability of treatment weighting propensity score analyses are presented in Table 2.

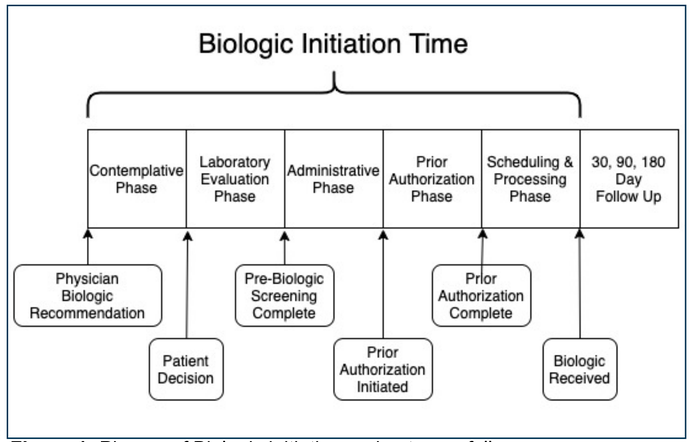

Figure 1: Phases of Biologic initiation and outcome follow-up

Table 1: Association Between PA Requirement and Biologic Initiation Time

	ULR β-coefficient (days) (95%CI)	MLR β-coefficient (days) (95%CI)
PA Requirement	9.2 (3.7, 14.6)	10.1 (8.3, 11.9)
Complicated PA	13.4 (6.4, 20.5)	14.3 (6.2, 22.4)
Biologic Initiation Time Subphase		
Contemplative	0.9 (0.5, 1.2)	0.9 (0.7, 1.2)
Laboratory Evaluation	0.3 (0.0, 0.6)	
Administrative	0.8 (0.3, 1.3)	0.9 (0.6, 1.2)
Prior Authorization	0.9 (0.8, 1.1)	
Scheduling and Processing	0.9 (0.7, 1.1)	1.1 (0.9, 1.2)

Table 2: Average Treatment Effects (ATE) of Exposure of Interest on Adverse Events

Exposure	Time (days)	N	Exposure Present		Exposure Absent		ATE (95% CI)
			AE	No AE	AE	No AE	
A) PA Requirement	30	180	9	130	2	39	**5.9 (0.4, 11.2)**
	90	189	19	121	8	41	**8.7 (0.2, 17.1)**
	180	167	32	94	6	35	**12.9 (2.5, 23.4)**
B) Private Insurance	30	183	4	131	7	41	**-12.9 (-22.4, -3.3)**
	90	178	15	120	9	34	**-11.8 (-23.0. -0.6)**
	180	183	28	108	15	32	-10.6 (-22.0, 0.8)
C) Complicated PA Process	30	178	1	22	11	144	1.9 (-6.1, 10.0)
	90	135	1	20	22	92	-12.5 (-26.2, 1.2)
	180	163	5	20	37	101	-6.6 (-20.6, 7.3)

RESULTS

- PA Requirement was associated with increased SAE risk by 5.9% at 30 days, 8.7% at 90 days, and 12.9% at 180 days.
- Private Insurance was associated with decreased SAE risk by 12.9% at 30 days and 11.8% at 90 days, and had no effect at 180 days.
- Complicated PA processes were not associated with SAEs.
- PA requirement was associated with a 14.1% (95%CI 3.3, 24.8) increased risk of steroid dependence at 90 days.
- Complicated PA processes were associated with a 23.6% (95% CI 2.7, 44.4) increased risk of steroid dependence at 90 days.

CONCLUSIONS & IMPLICATIONS

- **PA requirements** are associated with delayed biologic initiation and increased SAE risk within 30, 90, and 180 days of physician recommendation, as well as an increased risk of corticosteroid dependence at 90 days.
- **Complicated PA** processes are associated with further delays in biologic initiation and corticosteroid dependence at 90 days, but are not associated with increased SAEs. In this cohort. This may be secondary to sample size.
- After adjusting for PA requirements, **private insurance** may be associated with a lower risk of adverse events in comparison to public insurance.
- Eliminating and/or expediting the prior authorization process has the potential to significantly improve patient care by hastening biologic initiation, decreasing subsequent adverse events, and decreasing corticosteroid related morbidity.

DISCLOSURES

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