FACTORS ASSOCIATED WITH OVERALL RESPONSE TO BIOLOGIC THERAPY IN PATIENTS WITH INFLAMMATORY BOWEL DISEASE

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BACKGROUND

- Biologic therapy has revolutionized the approach to treating inflammatory bowel disease (IBD).
- However, up to 40% of patients do not respond to initial biologic therapy.
- Factors associated with primary response to initial biologic therapy have been described, though literature is conflicting.
- Literature around factors associated with response to biologic therapy in patients who have been on multiple biologics is limited.

OBJECTIVE

- We aim to explore factors that predict overall response to biologic therapy using real-world data, considering patients who have been on multiple biologics.

METHODS

Study Design and Data Source:

- Retrospective chart review study.
- We used Electronic Health Record data to identify patients age ≥ 18 years with IBD who received between one to three biologic therapies between 2015 and 2021 at a single tertiary care center.

Data Collection:

- Demographic data, baseline disease characteristics, treatment history, laboratory values, clinical activity scores, and endoscopy reports were abstracted.
- Response to therapy was defined by low clinical disease activity scores, low calprotectin, and inactive disease on endoscopy.

Analyses:

- Multivariable logistic regression was used to evaluate patient- and disease-specific factors associated with response to biologic therapy.

Table: Multivariable regression analysis examining factors associated with response to biologic therapy. Response was defined by low clinical disease activity scores (Harvey Bradshaw Index < 5, Simple Clinical Colitis Activity Index < 3), calprotectin < 50 µg/mg, and inactive disease on endoscopy.

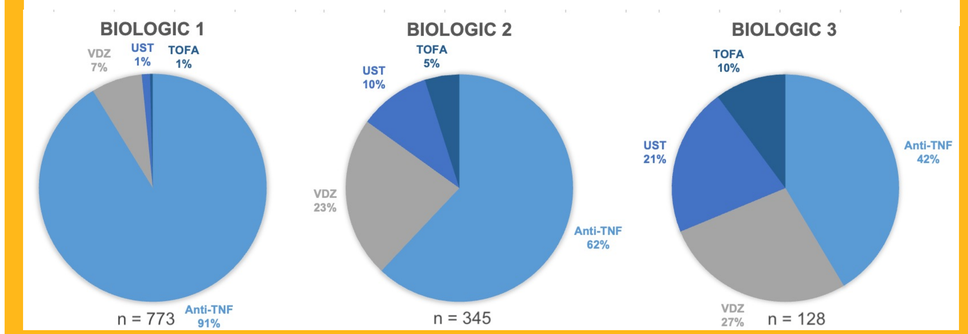
	CD, N=403 n or Mean (SD)	UC, N=371 n or Mean (SD)	aOR (95% CI)	p value
Demographics				
Age (years)	34.8 (15.5)	39.0 (15.3)	0.99 (0.98-1.00)	0.14
Male	193	209	Reference	
Female	189	182	1.02 (0.77-1.34)	0.90
Prior biologic use				
1st biologic	402	371	Reference	
2nd biologic	165	180	0.84 (0.62-1.14)	0.27
3rd biologic	68	60	**0.63 (0.40-0.98)**	**0.04**
Race				
White	303	265	Reference	
Black	16	17	0.51 (0.25-1.01)	0.06
Asian	21	22	1.31 (0.72-2.37)	0.38
Other	63	67	0.75 (0.52-1.08)	0.13
Tobacco use				
Never smoker	302	287	Reference	
Former smoker	69	70	1.20 (0.61-2.36)	0.59
Current smoker	26	13	1.70 (0.92-3.14)	0.09
Disease characteristics				
Prior IBD surgery	88	16	1.08 (0.70-1.66)	0.72
Concurrent steroid	80	150	1.05 (0.79-1.40)	0.73
Concurrent immunomodulator	106	98	**1.63 (1.21-2.19)**	**< 0.01**
Concurrent 5-ASA	40	111	1.19 (0.84-1.68)	0.34
Disease duration (years)	7.6 (9.6)	8.1 (9.4)	1.00 (0.98-1.02)	0.78
EIMs				
Uveitis	13	8	1.02 (0.45-2.35)	0.96
Oral ulcers	29	14	0.82 (0.47-1.43)	0.49
Peripheral arthropathy	50	37	0.86 (0.57-1.29)	0.47
Axial arthropathy	35	15	1.39 (0.78-2.49)	0.26
Inflammatory skin changes	12	11	1.40 (0.62-3.14)	0.42
PSC	5	14	**0.38 (0.16-0.92)**	**0.03**

Abbreviations: aOR = adjusted odds ratio; CI = confidence interval; IBD = inflammatory bowel disease; EIMs = extraintestinal manifestations; PSC = primary sclerosing cholangitis
Note: model adjusted for age, sex, smoking status, prior surgery, concomitant medications, extraintestinal manifestations, and disease duration.

RESULTS

- There were 773 subjects with 1246 initiations of a biologic drug.
- 217 patients had only been treated with one prior biologic, and 128 patients had been treated with two prior biologics.
- Factors that predicted poor response to biologic therapy included use of two prior biologics and diagnosis of primary sclerosing cholangitis (Table).
- Concurrent use of an immunomodulator predicted response to therapy.
- Age, sex, race, smoking status, concurrent 5-ASA or steroid use, disease duration, and prior IBD surgery were not associated with clinical response to biologics overall.

Figure: Specific biologic agents chosen as first, second, and third agents. Anti-TNF = anti-tumor necrosis factor; VDZ = vedolizumab; UST = ustekinumab; TOFA = tofacitinib.



CONCLUSIONS

- Multiple factors influence pharmacologic management decisions for patients with IBD.
- Providers should consider that patients with PSC may have suboptimal response to biologic therapy, and concurrent prescription of an immunomodulator may improve the likelihood of response, independent of prior biologic therapy.
- Lack of response to two prior biologics should prompt an early multidisciplinary discussion about next steps in treatment.

ACKNOWLEDGEMENTS

UCLA Department of Medicine, UCLA Vatche and Tamar Manoukian Divison of Digestive Diseases

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