

# Micronutrient Deficiencies in Elderly Inflammatory Bowel Disease are not Associated with Worsened Rates of Adverse Outcomes

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## Objective

- Determine whether micronutrient deficiencies (MND) correlate with higher rates of adverse clinical outcomes in elderly patients with inflammatory bowel disease (IBD).

## Background

- MNDs are more common in patients with IBD<sup>1</sup>. IBD patients with folate, vitamin B12, vitamin D, iron and zinc deficiencies previously have been observed to have poor outcomes<sup>2</sup>.
- The IBD population is aging<sup>3</sup>. Age itself is a risk factor for micronutrient deficiency<sup>4</sup>. Elderly patients have mixed clinical outcomes compared to younger IBD patients<sup>5,6</sup>.

## Hypotheses

- 1) Elderly patients will have higher rates of MNDs compared to young patients.
- 2) Elderly MND patients will have higher rates of adverse clinical outcomes than young MND patients.

## Methods

- Study Design:** A retrospective chart review was performed of patients with IBD from a single institution database at a tertiary care facility.
- Study Populations:** IBD patients were divided into young (age < 60) and elderly (age ≥ 60) populations.
- Outcomes:** Rates of corticosteroid use, combined intestinal complication (fistula, abscess, stricture), IBD surgery, IBD hospitalization, any major adverse gastrointestinal event (MAGE) were observed.
- Analysis:** Fisher's exact test, chi-squared, and logistic regression analyses were conducted.

## Results

Table 1: Patient Characteristics

	Young (%)	Elderly (%)	Total (%)
Patient Number	128 (69.1)	57 (30.1)	185
Age	39	71*	48.5
Female	71 (55.5)	33 (57.9)	104 (56.2)
BMI	27.4	26	26.9
Caucasian	101 (78.9)	53 (93.0) *	154 (83.2)
Never Smoker	101 (78.9)	26 (45.6) *	127 (68.6)
Crohn's Disease	73 (57.0)	37 (65.0)	110 (59.5)
Ulcerative Colitis	53 (41.4)	20 (35.1)	73 (39.4)
Disease Duration (yr)	12.5	25.6*	16.2
Follow-Up Duration (yr)	3.1	3.2	3.1
Immunomodulator	35 (27.3)	12 (21.1)	47 (25.4)
Current Biologic	62 (48.4)	28 (49.1)	90 (48.6)
Prior-Biologic	59 (46.1)	19 (33.3)	78 (42.2)
Prior Corticosteroids	99 (77.3)	41 (71.9)	140 (75.7)

Table 2: Rates of MNDs

	Young (%)	Elderly (%)	Total (%)
Vitamin D	81 (69.8)	34 (59.6)	115 (68.0)
Folate	2 (2.2)	1 (2.6)	3 (2.3)
Vitamin B12	9 (8.0)	2 (4.3)	11 (6.9)
Iron	52 (49.5)	21 (46.7)	73 (48.7)
Zinc	29 (37.2)	11 (33.3)	40 (36.0)

- No demographic, disease, or medication variables were associated with MNDs.
- Elderly patients with MND were not more likely to experience adverse outcomes.

## Results Continued

Table 3: Outcomes of the Total Population

	Vitamin D (p)	Iron (p)	Zinc (p)
Need for Corticosteroids	0.350	0.011*	0.092
Combined Intestinal Complication	0.011*	0.011*	0.098
IBD Surgery	0.093	0.012*	0.393
IBD Hospitalization	0.700	0.001*	0.304
MAGE	0.316	0.003*	0.054

Table 4: Outcomes of Young and Elderly Populations

	Young (%)	Elderly (%)	p-value
Need for Corticosteroids	46 (35.9)	11 (19.3)	0.026*
Combined Intestinal Complication	22 (17.2)	6 (10.5)	0.28
IBD Surgery	9 (7.0)	4 (7.0)	>0.99
IBD Hospitalization	21 (16.4)	11 (19.3)	0.68
MAGE	61 (47.7)	17 (29.8)	0.025*

## Conclusions

- MNDs were common regardless of age.
- Vitamin D and iron deficiencies were associated with adverse outcomes in all IBD patients; however, elderly age was not related to adverse outcomes in MND patients.
- Compared to older patients, younger IBD patients were more likely to require corticosteroids and experience a MAGE.

## References

