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The Beneficial Effects of Increasing Dietary Fiber Consumption on Clinical Flare and Inflammatory Markers among Patients with Clinically Quiescent Inflammatory Bowel Disease: A Prospective Longitudinal Study

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INTRODUCTION

The effect of dietary fiber on inflammatory bowel disease (IBD) is less well defined. This prospective longitudinal study aimed to determine the effect of dietary fiber intake on clinical relapse rate and changes in fecal calprotectin levels in clinically quiescent IBD patients.

METHOD

- A prospective interventional cohort study in 61 IBD
  - 23 CD and 38 UC
- Six times visit per patients during 54 week-period
  - weeks 0, 6th, 18th, 30th, 48th, 54th
- Fecal calprotectin measurement
  - week 0, 6th, 30th, 54th
- A nutritionist counseled to increase their dietary fiber and interviewed every visit
- Dietary assessment: food photograph 3 days/week, food questionnaire every visit
- Three groups of patients:
  - Increased fiber (>25%)
  - Not change fiber (-25 to 25%)
  - Decreased fiber (>25%)
- Outcomes: clinical flare rate between groups, correlation between fecal calprotectin and dietary fiber

RESULTS

- Baseline: average dietary fiber consumption was 7.78 g/day (IQR, 5.68-11.9)
- During the 54-week: 3 groups of patients
  - Increased fiber: 20 (32.8%) patients (mean 3.82±2.57 g/day)
  - Not change: 28 (45.9%) patients
  - Decreased fiber: 13 (21.3%) patients (mean 12.2±18.0 g/day)
- Overall cumulative rate of the clinical flare 27.7%
  - Significantly higher in the decreased fiber than in the increased fiber group (60.4% vs. 16.9%, p=0.01)
- 1 g increase in fiber intake, decrease fecal calprotectin 12.51 mg/g feces (95% CI, 1.0-24.0, p=0.03)
  - The effect was more pronounced in ulcerative colitis

Table 1 Baseline patients' characteristics

Variables	Values
Age – mean(SD)	43.39(13.71)
Gender	
Male	39(63.93%)
Woman	22(36.07%)
Disease type	
Crohn's disease (CD)	23(37.70%)
Ulcerative colitis (UC)	38(62.30%)
CD locations	
Ileum	9(39.13%)
Colon	2(8.70%)
Ileocolon	10(43.48%)
Isolated upper GI involvement	2(8.7%)
Upper GI involvement	5(21.74%)
CD behaviours	
Inflammatory	12(52.17%)
Stricture	8(34.78%)
Fistula other than perianal fistula	3(13.04%)
Perianal disease	2(8.70)
UC locations	
Proctitis	3(7.89%)
Left-sided colitis	18(47.37%)
Extensive colitis	17(44.74%)
Previous bowel surgery	12(19.67%)
Blood tests	
Hb (g/dL)– mean(SD)	13.50(1.75)
Albumin (g/dL) – mean(SD)	4.47(0.30)
CRP (mg/L) – median(IQR)	1.44(0.69-2.80)
Fecal calprotectin (mg/kg of feces) – median(IQR)	168(47-804)
Current medications	
5-ASA	49(80.33%)
Corticosteroids (≤ 10 mg of prednisolone)	23(37.70%)
Immunomodulators	45(73.77%)
Biologics	9(14.75%)

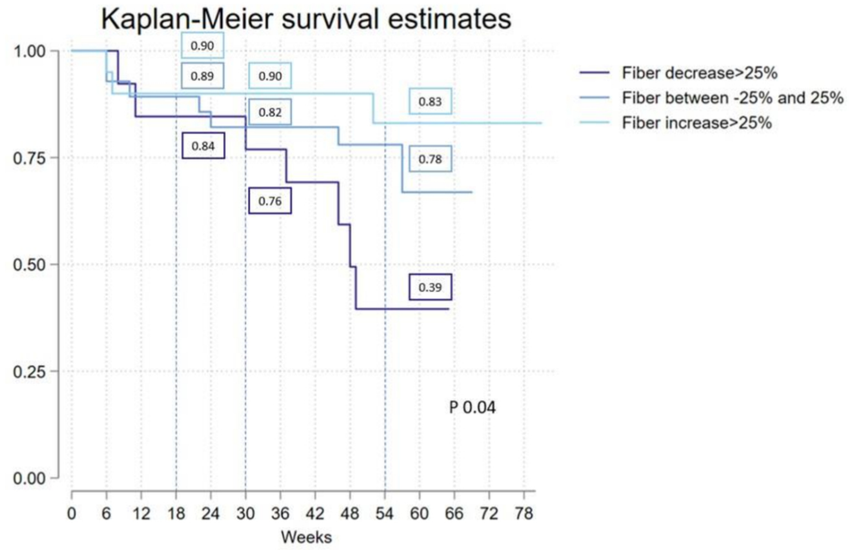

Figure 1. Kaplan-Meier survival estimation of the association between fiber intake and disease flare rate

CONCLUSIONS

Increased dietary fiber intake was associated with lower clinical flare rate and decreased disease inflammatory marker.

REFERENCES

Chiba M, Abe T, Tsuda H, et al. Lifestyle-related disease in Crohn's disease: relapse prevention by a semi-vegetarian diet. *World J Gastroenterol*. 2010; 16: 2484-95.

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