Disease-related quality of life and its determinants in patients with inflammatory bowel disease

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Background/Aims: Inflammatory bowel disease (IBD) including Crohn's disease (CD) and ulcerative colitis (UC) is a chronic, potentially progressive and disabling disease. IBD patients require long-term treatment with frequent relapse and the need of hospitalizations. Therefore, IBD patients report a lower quality of life (QOL) compared with healthy individuals. We aimed to evaluate the IBD-related QOL and identify the determinants of QOL in CD and UC patients. **Methods:** We investigated 95 patients including 34 CD and 61 UC patients, and evaluated patients' QOL using IBD-specific questionnaire. To identify the determinants of QOL, we investigated patients' clinical characteristics, disease activity, IBD-serology including ASCA, ANCA, and laboratory findings such as CRP, albumin, fecal calprotectin. **Results:** In CD patients, Crohn's disease activity index had strong negative correlation with patients' QOL (r=-0.646, $p<0.001$), and higher ASCA IgG levels were significantly associated with a lower QOL (r=-0.353, $p=0.041$). In UC patients, Mayo score and fecal calprotectin level had strong negative correlation with patients' QOL (r=-0.745, $p<0.001$; r=-0.575, $p<0.001$, respectively). In addition, p-ANCA and CRP levels were significantly associated with a lower QOL (r=-0.302, $p=0.022$; r=-0.291, $p=0.025$, respectively). **Conclusions:** Disease activity is an important determinant of QOL in both CD and UC patients. In addition, IBD-serology, CRP, and fecal calprotectin were significantly associated with a QOL in IBD patients.

Table 1. Variables associated with a quality of life in patients with inflammatory bowel disease.

Variables	Crohn's disease		Ulcerative colitis	
	r	p-value	r	p-value
CDAI	-0.646	0.000	NA	NA
Mayo score	NA	NA	-0.745	0.000
ASCA IgA levels	0.065	0.717	0.257	0.066
ASCA IgG levels	-0.353	0.041	0.211	0.134
c-ANCA levels	-0.147	0.407	-0.143	0.292
p-ANCA levels	0.007	0.971	-0.302	0.022
CRP	-0.252	0.151	-0.291	0.025
Albumin	0.327	0.059	0.206	0.118
Hemoglobin	0.069	0.699	0.040	0.766
Fecal calprotectin	-0.263	0.133	-0.575	0.000

CDAI, Crohn's disease activity index; NA, not applicable; ASCA, anti–*Saccharomyces cerevisiae* antibody; ANCA, anti-nuclear cytoplasmic antibody; CRP, C-reactive protein; r, correlation coefficient.

The effect of vitamin D administration on inflammatory marker in inflammatory bowel disease patients

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Background/Aims: The association between vitamin D deficiency and inflammatory bowel disease (IBD) has been previously demonstrated. However, their exact relationship remains unclear. We evaluated the effect of vitamin D3 administration on inflammatory responses and disease severity in IBD patients. **Methods:** We investigated the serum 25-hydroxyvitamin D3 [25-(OH)D] and C-Reactive Protein (CRP), and the partial Mayo score (PMS) in patients with IBD. Vitamin D3 was administered to patients with either vitamin D deficiency or insufficiency. The CRP, serum vitamin D levels and PMS were re-examined within 6 months after vitamin D3 administration. **Results:** In 88 patients with Crohn's disease (CD), a negative correlation was found between serum vitamin D and CRP (P=0.015, rho=-0.259). In 178 patients with ulcerative colitis (UC), serum vitamin D showed no association with CRP or PMS (rho=-0.073, P=0.331). Serum vitamin D rose from 11.08 ± 3.63 to 22.69 ± 6.11 ng/mL in the 29 patients with CD and from 11.45 ± 4.10 to 24.20 ± 6.61 ng/mL in the 41 with UC who received vitamin D3 treatment (P <0.001 and <0.001). In patients with CD, Δ CRP was -1.21 ± 0.42 in the normalized vitamin D group and -0.45 ± 0.32 in the non-normalized group (P=0.308). In patients with UC, Δ CRP was -0.45 ± 0.20 in the normalized vitamin D group and -0.87 ± 0.76 in the non-normalized group (P=0.359). **Conclusions:** The fact that vitamin D administration does not improve CRP implies that vitamin D deficiency is a secondary consequence rather than a cause of CD.
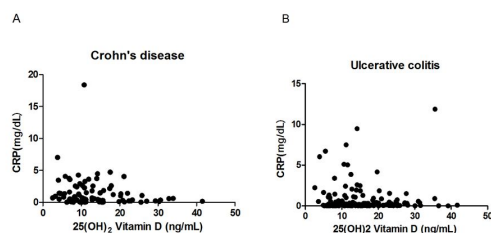
Figure 1. Correlation between 25-(OH)₂ vitamin D and C-Reactive Protein in patients with (A) Crohn's disease or (B) ulcerative colitis

Table 1. Comparisons of Δ 25(OH)₂ Vitamin D, Δ C-Reactive Protein, Δ partial Mayo score between Groups according to Serum 25(OH)₂ Vitamin D Level After Vitamin D Administration[a]

	Crohn's disease (n = 29)			Ulcerative colitis (n = 41)		
	Normalized Vitamin D group (n=19)	Non-normalized Vitamin D group (n=10)		Normalized Vitamin D group (n=32)	Non-normalized Vitamin D group (n=9)	
Δ25(OH)₂ Vitamin D (ng/mL), mean±SD	15.00±1.38	5.17±1.74	P = 0.001	15.22±1.12	3.95±2.02	P < 0.001
ΔCRP (mg/dL), mean±SD	-1.21±0.42	-0.45±0.32	P = 0.308	-0.45±0.20	-0.87±0.76	P = 0.359
Δpartial Mayo score, mean±SD				-1.22±0.48	-0.11±1.07	P = 0.269

[a]Normal vitamin D level was defined as > 20 ng/mL.

CRP, C-Reactive Protein