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Relationship Between Age and Crohn's Disease Phenotype in Patients Admitted at Gujarat Adani Institute of Medical Science, Bhuj, Kutch, Gujarat

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ABSTRACT

Objective: to compare disease behaviour in patients with Crohn's disease (CD) based on age at diagnosis.

Methods: behavior was characterized according to the Montreal classification. Patients with either stricturing or penetrating disease were classified as having complicated disease. Age at diagnosis was categorized as <17, 17–40, 41–59 and ≥60 years. Logistic regression analysis was performed to examine the association between advanced age ≥60 and complicated disease.

Results: A total of 467 patients were evaluated in Gujarat Adani Institute Of Medical Science From April 2013 and may 2015. Increasing age of diagnosis was negatively associated with complicated disease and positively associated with colonic disease. As age of diagnosis increased, disease duration, family history of Inflammatory bowel disease and perianal disease decreased. After adjustment for confounding variables, the association between age at diagnosis and complicated disease was no longer significant (OR: 0.60, 95% CI: 0.21–1.65).

Conclusions: patients diagnosed with CD ≥60 were more likely to have colonic disease and non-complicated disease. However, the association between age at diagnosis and complicated disease did not persist after adjustment for confounding variables.

KEYWORDS : Age, Behavior, Inflammatory bowel disease, Logistic regression

Introduction

Inflammatory bowel disease (IBD) is a group of disorders that causes sections of the gastrointestinal tract to become severely inflamed and ulcerated. An abnormal response of the body's immune system plays a role in each of the two main forms of IBD; namely Crohn's disease (CD) and ulcerative colitis (UC). IBD has a tremendous impact on quality of life due to a host of devastating symptoms, as well as a substantial personal burden. Crohn's disease encompasses a multisystem group of disorders with specific clinical and pathological features characterized by focal, asymmetric, transmural, and, occasionally, granulomatous inflammation primarily affecting the gastrointestinal (GI) tract. CD is a chronic in ammatory disorder that is neither medically nor surgically –curable, requiring therapeutic approaches to induce and maintain symptomatic control, improve quality of life, and minimize short- and longterm toxicity and complications [1,2]. Newer goals of therapy include the induction and maintenance of mucosal (and histologic) healing [3, 4]

Clinical characteristics of CD patients may differ based on age at diagnosis. French and Canadian cohort studies showed that CD patients 60 years and older were more likely to have colonic disease location [5,6]. The development of CD complications (strictures or internal fistulas) has not been shown to be different in older patients compared with younger patients however, Ananthakrishnan et al. showed that elderly CD patients were less likely to be hospitalised with complicated disease [7]. The objective of our study was to compare complicated disease behaviour in CD patients based on age at diagnosis.

Methods

We compared differences in CD behaviour among patients diagnosed at <17 years, 17–40 years, 41–59 years and ≥60 years of age. Disease behaviour was divided into the following categories: inflammatory, stricturing or penetrating according to the 2005 Montreal Classification system. Patients with stricturing or penetrating disease were classified as complicated behaviour.

Study design

This was a cross-sectional study of adults with CD evaluated at the Gujarat Adani Institute Of Medical Science From April 2013 and may 2015. Demographics, family history of IBD, smoking history and extra intestinal manifestations are collected at each visit. Adult patients with CD, confirmed in the record using standard clinical, endoscopic, radiographic and pathological criteria, were eligible to participate.

Formulation of CD phenotype

CD behaviour was categorised as inflammatory, structuring and penetrating type, with or without perianal disease. Disease behaviour was determined based on the patients' entire medical history at the time of data extraction. Date of symptom onset was based on patient self-report and was confirmed by the medical provider at the initial visit.

Data analysis

Data analysis was done using the Chi-square test. Logistic regression analysis was used to determine the likelihood of complicated behaviour in patients diagnosed at ≥60 years of age. Potential confounding variables were added to the model in stepwise fashion. All analyses were performed SPSS version 15.

Results

See Table 1 for the demographics of the 470 patients evaluated. Twenty fiv were diagnosed at ≥60 years. Of these, seven were diagnosed at ≥65 years, 3 at ≥70 years and 3 at ≥75 years of age. Two hundred and ninety-seven patients (64%) had complicated disease (see Figure 1). Behavior can be seen that 74, 66, 44 and 36% of patients diagnosed <17, 17–40, 41–59 and 60 years of age and older had complicated disease, respectively (P < 0.01). When compared with persons <60 years, those ≥60 years had a significantly decreased odds of complicated disease (OR: 0.31, 95% CI: 0.13–0.75). The proportion of patients with colonic disease increased from 20% in patients <17 compared with 55% in patients ≥60 years (P<0.01). Adjustment for disease duration, disease location, perianal involvement and IBD family history revealed that the odds of having complicated disease when diagnosed at ≥60 years was 0.60 (95% CI: 0.21–1.65),. A subanalysis was performed to compare differences in disease behaviour between patients diagnosed at 41–59 years and those ≥60 years adjusting for disease location, demographics, family history of IBD, smoking and disease duration. There was no association between diagnosis at ≥60 years and complicated behaviour compared with those diagnosed between 41 and 59 years (OR: 0.59, 95% CI: 0.15–2.36).

Table 1: Demographic variables of participants

Variable	< 17 years	17-40 years	>40-59 years	> 60 years	P value
Sex					
Male	36	129	20	6	0.42
Family history					
Yes	22	251	487	20	0.10
Location					

Ilieal	15	111	19	4	0.03*
Colonic	15	53	20	11	
Ilecolonic	44	116	13	4	
Upper tract	1	9	0	1	
Behavior					
Inflammatory	20	105	31	14	
Stricturiong	24	96	18	3	0.002*
Penetrating	34	111	6	5	
Perianal					
Yes	35	101	7	6	0.90

Discussion

Five percent of the patients were diagnosed at ≥60 years. Increasing age at diagnosis was associated with isolated colonic disease and non-complicated disease behaviour. Patients diagnosed at an older age had decreased duration of disease. Findings of these study are consistent with results published by Polito et al., where earlier age of diagnosis was associated with complicated disease; however, age at diagnosis was dichotomised at 40, making their older age diagnosis group younger than ours [8]. Our results conflict with those of Gupta et al. and Freeman, which showed no difference in disease behaviour in older patients compared with younger patients [9, 10]. Our study found that 55% of patients diagnosed with CD ≥60 had isolated colonic disease. Polito et al. reported that 85% of patients diagnosed over 40 demonstrated colonic involvement; however, the number with isolated colonic disease was not reported. A retrospective study from British Columbia reported a higher rate of colonic involvement in elderly patients. Further, they used a standardized classification system to phenotype patients similar to the one used in our study [11, 12, 13]. The propensity for colonic disease location and less severe disease phenotypes in older patients could be affected by colorectal cancer screening measures[14, 15,16]. It is possible that older patients are diagnosed when asymptomatic or minimally symptomatic during colorectal cancer screening. If this were true, we would expect older patients would have a decreased time between symptom onset and diagnosis. We compared the amount of time elapsed between symptom onset and time of diagnosis by age group. We found that time from symptom onset to diagnosis increased with increasing age. Therefore, it is unlikely that older patients are diagnosed at a pre-clinical stage with colonic disease location as a consequence of screening for colorectal cancer. It is also possible that elderly patients are less likely to undergo small bowel imaging and/or video capsule endoscopy for staging which would limit the detection of small bowel involvement.

Limitation of the study is small number of patients diagnosed at ≥60 years. Since disease duration decreased significantly with age at diagnosis, it is possible that over time older patients will develop more complicated behaviour. Although speculative, this theory was supported by our regression analyses, which showed no association of age at diagnosis with complicated disease after adjustment for duration of disease. This study was strengthened by the use of adjusted analyses to control for disease duration and location, important confounding variables.

Our study suggests that patients diagnosed with CD ≥60 are more likely to exhibit isolated colonic disease location and less likely to have complicated disease, although the latter was not significant in the regression model. Our results should be interpreted with caution given the small sample size of patients diagnosed at ≥60 years. Given the lack of difference in disease behaviour or location seen between the two older age groups in our analysis, there may be little value in expanding on the current Montreal Classification system by isolating those diagnosed at ≥60. Larger studies are needed to examine disease location and behaviour in older CD patients. These studies should allow for adequate follow-up time for behaviour to 'evolve'.

References

1. Loftus CG, Loftus EV Jr, Harmsen WS et al. Update on the incidence and prevalence of Crohn's disease and ulcerative colitis in Olmsted County, Minnesota, 1940–2000. Inflamm Bowel Dis 2007; 13: 254–61.
2. Lapidus A, Bernell O, Hellers G, Persson PG, Lofberg R. Incidence of Crohn's disease in Stockholm County 1955– 1989. Gut 1997; 41: 480–6.
3. Cottone M, Cipolla C, Orlando A, Oliva L, Aiala R, Puleo A. Epidemiology of Crohn's disease in Sicily: a hospital incidence study from 1987 to 1989. "The Sicilian Study Group of Inflammatory Bowel Disease". Eur J Epidemiol 1991; 7: 636–40.
4. Sonnenberg A. Age distribution of IBD hospitalization. Inflamm Bowel Dis 2010; 16: 452–7.
5. Ananthakrishnan AN, McGinley EL, Binion DG et al. Inflammatory bowel disease in the elderly is associated with worse outcomes: a national study of hospitalizations. Inflamm Bowel Dis 2009; 15: 182–89.
6. Freeman HJ. Crohn's disease initially diagnosed after age 60 years. Age Ageing 2007; 36: 587–9.
7. Heresbach D, Alexandre JL, Bretagne JF et al. Crohn's disease in the over-60 age group: a population based study. Eur J Gastroenterol Hepatol 2004; 16: 657–64.
8. Polito JM II, Childs B, Mellits ED, Tokayer AZ, Harris ML, Bayless TM. Crohn's disease: influence of age at diagnosis on site and clinical type of disease. Gastroenterology 1996; 111: 580–6.
9. Freeman HJ. Crohn's disease initially diagnosed after age 60 years. Age Ageing 2007; 36: 587–9.
10. Gupta S, Saverymuttu SH, Keshavarzian A, Hodgson HJ. Is the pattern of inflammatory bowel disease different in the elderly? Age Ageing 1985; 14: 366–70.
11. Card T, Hubbard R, Logan RF. Mortality in inflammatory bowel disease: a population-based cohort study. Gastroenterology 2003; 125: 1583–90.
12. Ananthakrishnan AN, McGinley EL, Binion DG et al. Inflammatory bowel disease in the elderly is associated with worse outcomes: a national study of hospitalizations. Inflamm Bowel Dis 2009; 15: 182–89.
13. Heresbach D, Alexandre JL, Bretagne JF et al. Crohn's disease in the over-60 age group: a population based study. Eur J Gastroenterol Hepatol 2004; 16: 657–64.
14. Satsangi J, Silverberg MS, Vermeire S, Colombel JF. The Montreal classification of inflammatory bowel disease: controversies, consensus, and implications. Gut 2006; 55: 749–53.
15. Lennard-Jones JE. Classification of inflammatory bowel disease. Scand J Gastroenterol Suppl 1989; 170: 2–6; discussion 16–9.
16. Gasche C, Scholmerich J, Brynskov J et al. A simple classification of Crohn's disease: report of the Working Party for the World Congresses of Gastroenterology, Vienna 1998. Inflamm Bowel Dis 2000; 6: 8–15.