Alimentary Tract

Disease-related knowledge and smoking behavior of patients with Crohn's disease

Guanwei Li [a], Jianan Ren [a],[*], Gefei Wang [a], Qiongyuan Hu [a],[b], Qin Wu [a], Xiuwen Wu [a], Ranran Li [a], Kun Guo [a], Yuan Li [a], Guosheng Gu [a], Huajian Ren [a], Zhiwu Hong [a], Jieshou Li [a]

[a] Department of Surgery, Jinling Hospital, Medical School of Nanjing University, Nanjing, China
[b] Medical School of Southeast University, Nanjing, China

ARTICLE INFO

ABSTRACT

Background: Patients' knowledge poses effects on quality of life, treatment adherence and coping skills in the management of Crohn's disease. Smoking is the most established risk factor and associated with a more severe course.
Aims: We aimed to investigate the status of patients' knowledge on Crohn's disease in China, and explore the relationship between patients' knowledge and smoking behavior.
Methods: Web-based questionnaires were created including a validated Crohn's and Colitis Knowledge Score applied to all participants and the Fagerström Test for Nicotine Dependence to smokers. The sociodemographic data, disease characteristics and smoking status were recorded. Patients were enrolled through invitation emails and Internet advertising. Current and ex-smokers were re-visited 6 months after enrollment.
Results: 923 patients completed valid questionnaires with the knowledge score of 12.18 ± 4.61. Disease duration and educational status were independent predictors of the knowledge score by multiple linear regression analysis. The smoking rate was 8.2%. Low knowledge score was related with smoking behavior but not nicotine dependence, and smoking relapse during 6 months after enrollment.
Conclusions: Patients' education should be a priority considering its impacts on many factors including smoking. Extra attention should be given to those from countryside area or having low family income and educational achievement.

© 2016 Editrice Gastroenterologica Italiana S.r.l. Published by Elsevier Ltd. All rights reserved.

1. Introduction

Crohn's disease (CD), a subtype of inflammatory bowel disease (IBD), is defined as a chronic inflammatory disorder affecting any part of the digestive tract with an unknown etiology. This disease can lead to many physical symptoms including abdominal pain and diarrhea as well as extra-intestinal manifestations, and create excessive financial and psychological burdens due to its incurability and chronicity. Disease information support and patients' education have been gaining attention and proposed in the guidelines of IBD [1], suggesting an important role of disease-related knowledge in the patients' self-management. Increasing evidence shows that a higher level of disease-related knowledge is associated with a better quality of life in IBD [2,3]. Patients with high levels of knowledge also have few disease-related worries and concerns [4], and use more adaptive coping strategies [5]. A latest study further demonstrated a favorable effect on the health care costs of patients' knowledge [6].

Smoking has been well proven to be an independent risk factor for developing CD, and exert many detrimental effects on the disease course [7–9]. CD patients who smoke suffer increased rates of relapse and postoperative recurrence, and are more frequently treated by steroids, immunosuppressants and anti-TNF drugs. Smoking also influences disease behaviour resulting in more cases of stricturing phenotype and is associated with higher risk of hospitalization and surgery. In line with this point, smoking cessation brings favorable results. Cosnes et al. conducted an intervention study and demonstrated that patients who quit smoking had a decreased risk of flare-up as well as less need for steroids and for introduction or reinforcement of immunosuppressive medications when compared with continuing smokers [10].

* Corresponding author at: Department of General Surgery, Jinling Hospital, 305 East Zhongshan Road, Nanjing 210002, China. Tel.: +86 13605169808; fax: +86 2584803956.
E-mail address: JiananR@gmail.com (J. Ren).

The incidence and prevalence of IBD continue to rise in Asia and much of the developing world [11]. However to our knowledge there are few data reporting the levels of patients' knowledge from the developing countries. Rezailashkajani et al. evaluated one hundred patients with IBD from an outpatient clinic in Tehran with only 9 CD patients enrolled [12]. Another single-center study in Sri Lanka also recruited relatively few patients with CD [13]. The study by Leong et al. was conducted more than one decade ago using a self-devised knowledge questionnaire instead of the most common assessment tool [14]. Considering more severe and refractory disease course and negative effects of smoking in CD, we performed this large-scale study to specially investigate the levels of disease-related knowledge and its potential predictors among patients with CD in China, and for the first time to identify the association of patients' knowledge and smoking.

2. Materials and methods

2.1. Patient enrollment

This is a cross-sectional study with CD patients recruited via targeted email through the interest groups based on the QQ chat software and advertising on the Chinese IBD Forum (www.ibdlife.info). Free consulting service was promised as a nominal incentive for completing the survey. Informed consent was obtained via mails from the final participants as well as the electronic medical records if needed. The questionnaire used was web-based and designed by the secure third-party survey provider WenJuanXing (www.sojump.com). The answer time was monitored automatically and several trap questions were set without telling the patients in order to ensure the validity and reliability of the results. A trap question was the one describing the same meaning as the original question in a different way with the options rearranged.

2.2. Data collection

The sociodemographic data, disease characteristics and smoking status were recorded, and all patients were asked to complete a well-validated 24-item Crohn's and Colitis Knowledge (CCKNOW) questionnaire that covers four areas of disease management including general knowledge, medication, diet and complications [15]. The Chinese version of CCKNOW was developed by translation and back translation, and has been validated in the Chinese population [16]. One point was awarded for each correct answer with no negative marks for incorrect answers. For those current smokers, the Fagerström Test for Nicotine Dependence (FTND) was used to evaluate the dependency on tobacco [17]. Moreover, patients that were current smokers or ex-smokers at enrollment were re-visited after 6 months to inquire about the present smoking status, through previously registered phone number and/or email address.

2.3. Statistical analysis

Differences for continuous variables between two groups were tested by independent t test. One-way ANOVA was used for multigroup comparisons and Bonferroni post hoc method to analyze the intergroup differences. Chi-square test was conducted for group comparisons with respect to categorical variables. Associations between CCKNOW score and disease duration as well as FTND score were assessed with Pearson correlation analysis. Multiple linear regression was adopted to identify the influencing factors of CCKNOW score. All variables were simultaneously included in the multivariable analysis. All P values were two-sided, and $P < 0.05$ was considered statistically significant. All statistical analysis was performed using IBM SPSS for Windows version 19.0.

2.4. Ethical considerations

All study material and data were kept confidential. This study was approved by the Ethics Committee of Jinling Hospital.

3. Results

3.1. Patient characteristics

A total of 976 patients participated the survey from March 2015 to June 2015, 923 (94.57%) of whom finished valid questionnaires. Demographic and clinical characteristics are presented in Table 1. Patients consisted of 645 males and 278 females, with an average age of 31.25 ± 9.34 and 30.65 ± 9.24 respectively. The

Table 1
Patients characteristics.

	Male ($n = 645$)	Female ($n = 278$)	Total ($n = 923$)	P-value
Age (mean ± SD)	31.25 ± 9.34	30.65 ± 9.24	31.07 ± 9.31	0.370
Region				0.627
Countryside	125 (19.4)	59 (21.2)	184 (19.9)	
Town	183 (28.4)	71 (25.5)	254 (27.5)	
City	337 (52.2)	148 (53.2)	485 (52.6)	
Educational status[a]				0.073
Basic education	76 (11.8)	45 (16.2)	121 (13.1)	
Secondary education	262 (40.6)	120 (43.2)	382 (41.4)	
Higher education	307 (47.6)	113 (40.6)	420 (45.5)	
Family income (CNY/month)				0.004
<5000	357 (55.3)	178 (64.0)	535 (58.0)	
5000–10,000	178 (27.6)	75 (27.0)	253 (27.4)	
>10,000	110 (17.1)	25 (9.0)	135 (14.6)	
Employment	437 (67.8)	154 (55.4)	591 (64.0)	<0.001
Disease duration (years)	6.02 ± 4.59	6.57 ± 4.69	6.19 ± 4.63	0.097
Surgery for CD	241 (37.4)	101 (36.3)	342 (37.1)	0.824
Medical treatments[b]				
5-ASA	302 (46.8)	142 (51.1)	444 (48.1)	0.251
Azathioprine	260 (40.3)	102 (36.7)	362 (39.2)	0.305
Corticosteroids	78 (12.1)	40 (14.4)	118 (12.8)	0.336
Enteral nutrition	215 (33.3)	96 (34.5)	311 (33.7)	0.762
Infliximab	99 (15.3)	37 (13.3)	136 (14.7)	0.479

Values in parentheses are percentages (%).

[a] Education status was categorized as ≤primary school, junior middle school (basic education), ≥a senior high school (including vocational/technical secondary school and junior college), (secondary education) and ≥senior college and university (higher education).

[b] As a patient may receive a combination of several treatments, the sum is more than 100%.