Egyptian Physicians Attitude Toward the Management of Inflammatory Bowel Disease

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Abbreviations: IBD: Inflammatory bowel disease; GP: General practitioner; GIT: Gastrointestinal tract; MOH: Ministry of Health; CD: Crohn's disease; UC: ulcerative colitis; PHC: Primary health care; FC: Fecal calprotectin

1. Abstract

Background and aims: Inflammatory Bowel Disease (IBD) is a chronic destructive disease. A great proportion of IBD patients receive their management by non-specialists. We aimed to assess the level of knowledge and attitude of Nile Delta physicians toward IBD management. Methods: a questionnaire include 100 Egyptian physicians. Results: 88% were below 35 years, 50% were gastroenterologists. Crohn's disease to ulcerative colitis ratio 1:5. 76% of physicians follow the international guidelines. Of them 54% agreed that colorectal cancer screening should begin before 8 years from time of diagnosis. Fecal calprotectin is integral for IBD monitoring according to 74% of the surveyed physicians. 42% consider biologics for disease severity and 52% believe that the response rate with biologics does not exceed 50%. Physician working in university hospitals view biologic response rate IBD as 90%. Conclusion: non-specialized physicians although having acceptable knowledge, in need for educational activities and urgent need for national guidelines.

2. Introduction

Inflammatory Bowel Disease (IBD) is an inflammatory but rather chronic and destructive disease of the Gastrointestinal Tract (GIT), is associated with ulcerations, strictures formation, and perforations, and is a risk factor for dysplastic changes and malignant transformation [1]. Furthermore, patients with IBD are in a continuous need for life-long care and monitoring not only for their underlying IBD, but also for the drugs they utilize in treatment. Patients are susceptible for complications of both IBD and these drugs, which may affect their morbidity and mortality [2].

One possible barrier against perfect management and prevention of IBD complications is the attitude of the health-care practitioners especially physicians, because patients before definitely diagnosed with IBD are usually evaluated by Primary Healthcare (PHC) physicians, who deal with patients in early stages then refer them to IBD or gastroenterology specialists [3]. Of note, that worldwide as much as 2/3 of IBD patients receive their follow up in non-specialized centers [4] especially in low resource communities, like ours, where patients are unable to attend specialized centers for follow up with specialized IBD caregivers.

There is globally noticeable rise in the incidence and prevalence of IBD [5], further rises are also noted in Egypt [6] and this means that more and more non-IBD specialized physicians will deal with IBD patients. This study aimed to assess the level of knowledge and attitude of Egyptian physicians toward IBD management.

3. Patients and Methods

This was a cross-sectional survey study with 100 health-care Egyptian physicians from Nile delta. Demographics and data on the knowledge and practices of physicians were collected through a predefined questionnaire. They were questioned for their age, educational level (Bachelor degree = MBBCH, Master = MSC, Doctorate = MD) or career (resident, specialist, consultant) levels. They were divided in the analysis according to the specialty into 4 groups: General practi-

tioners/family medicine, General medicine, Gastroenterology, others e.g. general surgery.

3.1. Questionnaire Development

We have developed a questionnaire that came in two papers with 22 questions **(Supplementary material)**, prepared especially for Egyptian physicians to evaluate their knowledge and practice in management of IBD.

3.1.1. The questionnaire consists of two main parts:

1. Personal information (name, age, gender, specialty, degree and type of health care facility they belong to)

2. Physician attitude towards IBD patients (knowledge, diagnosis, lines of treatment and follow up)

3.2. Pilot Testing

The questionnaire was pilot-tested on a random sample of physicians attending one of our single topic meetings one month prior to the questionnaire distribution, focusing on wording and the time needed for completion. To keep compliance high, the time to fill in the questionnaire was not supposed to exceed 10 minutes. After the pilot testing, items that were found difficult to understand by most candidates were corrected. All participants who filled in the questionnaire for pilot testing were excluded from the following study.

3.3. Questionnaire Distribution

The questionnaire was distributed during the 1st Annual congress of the Department of Hepatology, Gastroenterology and Infectious Disease, Faculty of Medicine, Kafrelsheikh University, Kafr Elsheikh, Egypt (April 18th 2019). Attendants of the conference were primarily physicians practicing in Egypt.

The questionnaire was distributed in the day of the conference at the time of registration in the early morning and physicians were encourage to fill in the questionnaire during the break time and it was collected by the end of the day at the time of attendance certificate distribution.

3.4. Inclusion Criteria: The following were included

1. Physicians

2. Active practitioners (non-retired, administration or academics)

3. Practicing in Egypt.

4. Willing to participate

3.5. Exclusion Criteria: The following were excluded

1. Non-Physician health care providers

2. Medical students

3. Physicians who fill in the pilot questionnaire

3.6. Ethics

This study was performed in accordance with the Declaration of Helsinki, Good Clinical Practice and applicable regulatory requirements.

3.7. Statistical Analyses

Data were analyzed using the SPSS for Windows Version 15.0 (SPSS Inc., Armonk, New York). Both descriptive and analytical statistics were performed. Chi-square or Fisher exact test were applied for the comparison of different categorical variables, while Mann-Whitney U test was used to compare numeric variables. Data are expressed as mean (Standard Deviation [SD]) or number (%) as appropriate. In all cases, a P value of <0.05 was considered statistically significant.

4. Results

4.1. Demographics of Participants

The great majority of surveyed physicians (88%) were young practitioners and their ages were 24-35 years while 12% were more than 35 years, also 57% were in their early carrier life (MBBCH, MSC). As regarding specialty, 50% were specialized gastroenterologists and 26% were GPs and family medicine physicians. Regarding the highest Qualification about 19 had MBBCH, 38% had MSc consistent with specialist level, 21% had MD consistent with consultant level per Egyptian Medical Syndicate accreditations, 9% were MRCP and others comprised 13%. Males predominate and they comprised 60% of the physicians surveyed (Table 1).

Table 1: Demographic criteria of participants

	No.	%
Age		
24-35	88	88.0
36-45	12	12.0
Gender		
Male	60	60.0
Female	40	40.0
Specialty		
General practitioners/Family medicine	26	26.0
General medicine	16	16.0
Gastroenterologists	50	50.0
Others	8	8.0
Highest qualification		
MBBCH (Bachelor degree)	19	19.0
MSC (Master degree)	38	38.0
MD/PhD (Doctorate degree)	21	21.0
MRCP (Fellowship of the Royal college)	9	9.0
Others	13	13.0
Type of health facility		
Primary Care	8	8.0
MOH general hospital	21	21.0
Teaching hospital	16	16.0
University hospital	35	35.0
Private hospital/clinic	7	7.0
Others	13	13.0

4.2. Knowledge about the Prevalence and Disease Characteristics of IBD

All participants reported that they knew about IBD and its two main diseases; Crohn's Disease (CD) and Ulcerative Colitis (UC). The prevalence of IBD in Egypt is increasing according to 76% of participants, although 24% of them are not sure about the incidence of IBD in Egypt. This finding is emphasized by the cases of IBD

surveyed physicians see in their clinics; 36 % of the participant physician diagnose 1-3 IBD cases monthly, 30 % diagnose 3-5 IBD cases monthly, 19% diagnose more than 5 cases monthly, while 15 % did not diagnose new cases over the last few months and they rather deal with already diagnosed cases. Our surveyed physicians are actively involved in management of IBD patients; about 41% of them follow continuously 1-10 IBD patients, and 28% of them continuously follow more than 20 patients. Most of the physicians believe that the ratio of prevalence of CD to UC is 1:5; a finding consistent with our notice of increasing CD in the Egyptian community compared to the last decades. During their care 93% of doctors alarm their patients for the precautions they should follow to avoid disease exacerbations (Table 2).

Table 2: Knowledge about prevalence and characteristics of IBD

Parameter studied	Number	Percent
IBD cases seen monthly		
Zero	15	15
(1-3)	36	36
(3- 5)	30	30
(> 5)	19	19
Incidence of IBD in Egypt		
Increasing	76	76
Not sure	24	24
IBD Patients you caring		
Zero	24	24
(1-10)	41	41
(10- 20)	7	7
(> 20)	28	28
Crohn's disease/ Ulcerative colitis ratio		
1:01	20	20
1:05	59	59
1:10	21	21
Precautions to avoid Excerptions		
Yes	93	93
No	7	7
Local Guidelines for management of IBD		
Yes	93	93
No	7	7
Follow any international guidelines		
Yes	76	76
No	24	24
The most common extra-intestinal manifestations of IBD		
Arthralgia	72	72
Fatty liver	21	21
Eythyma nodosum	7	7

4.3. Knowledge about the Concept of Evidence Based Management of IBD

We lack national Egyptian and even regional Arabic or African guidelines to follow in the management of IBD according to 93% of the surveyed physicians and that is why 76% of them follow the international guidelines. Regarding the extra-intestinal manifestations of IBD, 72% of physicians suggest that arthralgia is the most common while 21% said that fatty liver is the most common one, however minority (7%) reported cutaneous manifestations especially erythema nodosum **(Table 2)**.
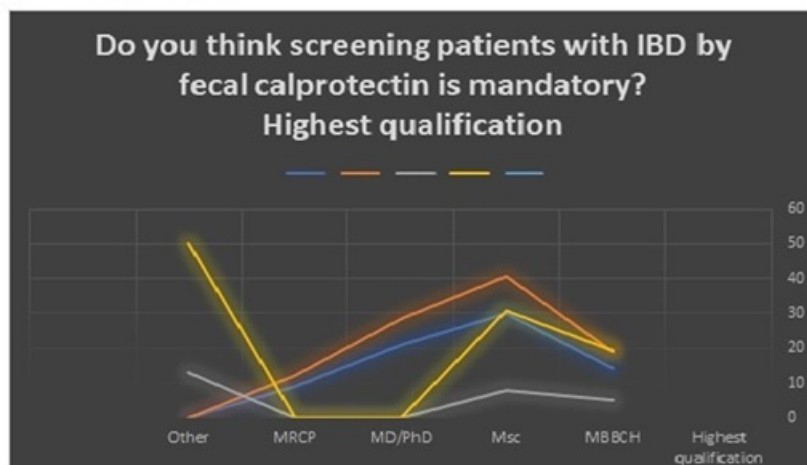
4.4. Screening for Colorectal Cancer

Colorectal cancer development is the serious long-term complication of IBD and was in the mind of 54% of the participants who agreed that screening for colorectal cancer should begin before 8 years from time of diagnosis. From the data shown in **Supplementary Table 1** and, it is clear that highly specialized physicians (gastroenterologists), highly qualified (MD) practitioners who are working in university/academic institutions agree the concept that mandate colorectal cancer screening among IBD patients before 8 years from the time of IBD diagnosis (p value <0.001).

4.5. Disease Monitoring with fecal calprotectin

Fecal Calprotectin (FC) has become an integral part of IBD monitoring according to 74% of the surveyed physicians. Young clinicians (<35 years) seems more updated about the use of fecal calprotectin than their older counterparts (P 0.029). Furthermore, the young active holders of MSC degree and GIT specialists are more aware with fecal calprotectin than other degrees and non-specialists respectively (P 0.001), and as usual university hospitals and academic institutions perform this test for their IBD patients more frequently (P 0.001) as shown in Table 3 and figure 1.

Attitude of physicians toward screening patients with IBD by fecal calprotectin according to their highest qualification

Figure 1: The distribution of health care practitioners practicing screening for colorectal cancer according to the scientific degree they hold

Table 3: Attitude Toward fecal calprotectin use in IBD

	Do you think screening patients with IBD by fecal calprotectin is mandatory?				
	Yes (n=74)		No (n=26)		P. value
	No.	%	No.	%	
Age					
24-35	62	83.8	26	100.0	**0.029**
36-45	12	16.2	0	0.0	
Specialty					
GP/Family medicine	16	21.6	10	38.5	**<0.001**
General medicine	16	21.6	0	0.0	
Gastroenterologists	42	56.8	8	30.8	
Other	0	0.0	8	30.8	
Highest qualification					
MBBCH	14	18.9	5	19.2	**<0.001**
MSc	30	40.5	8	30.8	
MD	21	28.4	0	0.0	
MRCP	9	12.2	0	0.0	
Other	0	0.0	13	50.0	
Type of health facility you are currently working at					
Primary Care	0	0.0	8	30.8	**<0.001**
MOH general hospital	16	21.6	5	19.2	
Teaching hospital	16	21.6	0	0.0	
University hospital	35	47.3	0	0.0	
Private hospital/clinic	7	9.5	0	0.0	
Other	0	0.0	13	50.0	

4.6. Knowledge and Practice use of Biologics in IBD

An interesting finding of the current study is the 100% knowledge of the role of biologics in treatment of IBD, which parallels the updated knowledge of our health care practitioners despite the lack of local national guidelines. Regarding indication of starting biological therapy for IBD; 42% accepted that it is related to the disease severity, 21% said it is related to the frequency of the disease exacerbation, 21% mentioned it is indicated for complicated diseases only while 16% recommend starting biological therapy for any patient diagnosed with Crohn's disease (Table 4).

Table 4: Knowledge and practice of screening and biologics

Parameter studied	Number	Percent
Starting screening for colorectal cancer		
Before 8 years	46	46
After 8 years	54	54
Use of fecal calprotectin		
Yes	74	74
No	26	26
Indication to start biological therapy?		
Frequent execration of the disease	21	21
Severity of the disease	42	42
Crohn's almost always need from start	16	16
Complicated diseases only	21	21
IBD response rate to biological therapy		
Up 50%	52	52
Up to 90 %	48	48
Dual therapy infliximab +immunosuppressive is better than infliximab alone		
Yes	85	85
No	15	15
Telling response rate to biologics in advance		
Yes	85	85
No	15	15
Discuss biologics side effects in advance		
Yes	93	93
No	7	7
Knowledge about ustekinumab		
Yes	14	14
No	86	86
Measuring infliximab Antibodies before shifting to other biologics		
Yes	60	60
No	40	40

Among our cohort, 52% believe that the response rate with biologics does not exceed 50%. From their practice, about 85% prefer dual therapy by infliximab and immunosuppressive over infliximab only. Development of biologics induced a paradigm shift in the management of IBD; however, it is not associated with 100% response rate. Furthermore, it is associated with many side effects, that is why 85% of participants tell their patients about the response rate to biological therapy before starting it, and 93% discuss with them in details the expected side effects of the therapy. Among our cohort, 60% of the physician practicing infliximab Ab assay before shifting to another biological therapy (**Supplementary Table 2**). Only 14% of the surveyed physicians have knowledge about ustekinumab as a new biological therapy for treatment of Crohn's disease (**Supplementary Table 3**). Young physicians (P<0.001), specialized in gastroenterology (P<0.001), holding MD/PhD degree (P<0.001), and working in University/ academic hospitals (P<0.001) view biologic therapy as highly effective (90% response rate) in treatment of IBD **(Supplementary Table 4)**.

5. Discussion

Still early diagnosis and proper management of IBD is a problematic dilemma with gaps in the attitude between different physicians. Recognizing the growing burden of not only the frequency [7] but also the cost of management of IBD being a real example of chronic diseases [8] necessitates the incorporation of non-gastroenterologists to carry out part of IBD care.

Only 50% of the surveyed were specialists in gastroenterology. Literature search found that 30-70% of IBD patients receive specialist's care [4, 9]. Consequently, large proportion of patients receives their care in non-specialized centers by non-specialized physicians (50% in our cohort). Bennett and his colleague [10] concluded that, if non-specialist physician's knowledge and experience with IBD is insufficient, suboptimal management of IBD would occur, which may lead to misidentification of flares, inappropriate use of corticosteroids, overuse of amino salicylates, or delay in delivering appropriate interventions.

There is an agreement that specialist management of IBD is essential particularly for new and problematic cases. While simple and stable cases can be followed up by generalists and Primary Health Care (PHC) physicians [4]. Hence, it is essential to measure/evaluate the knowledge and practices of them toward basic and evolving management strategies in IBD care. This will ultimately determine not only the points of weakness but also shade the light on targets of improvement.

Several studies have evaluated knowledge and attitude toward IBD from different countries [10,11,12], but only few were from the Middle East area including Egypt. To best our Knowledge this is the first study in Egypt, which evaluate the attitude of health-care physicians toward the management IBD. Follow up of patients in PHC is not suboptimal only in developing countries like Egypt. One interesting study from the UK showed that the use of 5-ASA for chemopreven-

tion of cancer colon among IBD patients in the PHC cohort was suboptimal [12].

In the current analysis, 88% of the participant physicians were between 24-35 years, while only 12% were more than 35 years age. This is consistent with the hierarchy of health care physicians in Egypt where the majority of practitioners are young age sector. Meanwhile, this suggested that low knowledge or experience did not seem to influence the confidence level of young physicians toward certain situations of IBD management or sharing in the questionnaire. In addition, this active group of young physicians would be good candidates of improvement programs. This fact have been recognized and improved among a cohort of 211 practitioners in Saudi Arabia where the knowledge and behavior of 211 PHC physicians toward IBD was evaluated. The authors concluded that the knowledge and comfort of PHC physicians with IBD medication prescription appears to be higher when education is provided. They also emphasized that such training programs are essential because PHC physicians are responsible not only for early identification but also for referral of suspected IBD patients to specialists [12]. Similarly, we can recommend similar programs for practitioners not only in the Egyptian Nile Delta but also to the whole country.

There is a growing global [5] increase in the incidence of IBD. In addition, Esmat et al., [6] reported similar marked increase in the frequency of IBD diagnoses in the last decade among Egyptians and this explains why 76% of physicians surveyed reported that IBD frequency is increasing in Egypt; 85% of them monthly see new patients with IBD and 19% of them diagnose more than five new IBD cases monthly. We hereby report that we increasingly diagnose many cases with CD than before, although the frequency of UC is still higher than CD [6,13]. Among the surveyed physicians, 59% reported the growing prevalence of IBD, this prevalence although obviously reporting CD patients than before still higher rates of UC were seen with ratio 1:5. The result is concordant with epidemiological and clinical characteristics of IBD in Cairo, Egypt which was described by Esmat et al [6].

Despite the growing interest and experience in the diagnosis and management of IBD, we still lack our national Egyptian guidelines a different situation from our success to formulate our HCC, HCV, and H pylori, management guidelines these guidelines were released and considered our resources and capabilities and that is why 76% of the physicians follow the international guidelines. Brazilian Study Group of Inflammatory Bowel Diseases showed that, there is an importance for developing local guidelines [14]. This represents another point of improvement, but this time for the national experts and not young physicians to develop Egyptian IBD management guidelines.

In fact, besides the best practice guidelines we need to deliver educational and training programs for non-specialists [11] and to review the literature to judge if the available educational and practice guidelines are tailored to GPs and PHC physicians. Unfortunately,

the current available educational materials and PHC directed guidelines in IBD are sub-optimally developed in comparison to the easily acceptable and useful materials/tools in other chronic diseases such as asthma, diabetes…etc. [10].

It seems that 72% of the physicians are aware of musculoskeletal manifestations of IBD particularly arthralgia, however their recognition of the other extra-intestinal manifestations seems low; 21% report IBD as risk factor for fatty liver being the second most common extra-intestinal manifestations after musculoskeletal manifestations while only 7% are aware about cutaneous manifestations like erythema nodosum. The knowledge of the surveyed physicians regrading musculoskeletal manifestations seems appropriate because other authors reported them as the most common [15].

This study showed that 75% of the physicians considered monitoring of IBD patients with calprotectin. Their attitude is consistent with evidence from international and national studies. Roseth and his colleagues mentioned that fecal calprotectin has been reported to identify endoscopic disease activity more reliably than the Crohn's Disease Activity Index and Ulcerative Colitis Disease Activity Index [16]. Similar reports were seen among Egyptian patients by Elsaadany et al., [17] who concluded that FC is an accurate biomarker in diagnosis and monitoring of UC, as well as good marker for the evaluation of disease activity. Therefore, it can be used as a monitoring test to assess medical response and to predict clinical relapse of the disease.

For the past 2 decades, infliximab was the only marketed biologic in Egypt and with limited availability. However, many are now available and fortunately covered by MOH and health insurance because of its high price in the private sector. We got satisfied that IBD patients in Egypt will be treated with biologics when needed, because the 50% specialists and 2% of non-specialists surveyed actually treated their patients with biologics. Furthermore, the biologics user recognize that its efficacy not exceed 50%, figure close to the reported findings in the international literature. In the ACCENT [18] and CHARM trials [19], the sustained response rates at 1 year in primary responders with infliximab and adalimumab were 39% and 43% respectively. This notice again gives us a feeling that judicious use of biologics is on the way.

The majority of practitioners surveyed (85%) consider dual therapy of infliximab (the first, cheapest, and readily available biologic in Egypt) plus an immunosuppressive is superior to infliximab monotherapy, their conclusions are supported by evidence, for example Colombel and his colleague reported that concomitant immunosuppressive therapy was shown to increase the trough levels of infliximab [19]. However, most of surveyed physicians (86%) lack knowledge about ustekinumab biologic that was approved for moderate-to-severe CD [20]; we believe this is because it was launched short before timing of questionnaire and also due to lack of regular educational activities focusing IBD.

It is clear that among patients with IBD the risk of CRC begins approximately 8 years after diagnosis and increases linearly thereafter and the risk factors for early CRC include diagnosis at a young age, longer duration of disease, and severity of intestinal inflammation [21-23]. This concept is noticed among specialists, with higher qualifications and working in big institutions compared to non-specialists of lower qualifications and working in primary and secondary health care centers (P<0.001). This finding in particular is of paramount importance not only because CRC is the most serious long-term complication of IBD, but also due to lack of CRC screening program in Egypt. This means that if the treating physicians were not aware about this risk, this preventable potentially curable cancer would be missed. Consequently, we need a CRC screening program [24] as soon as possible hand in hand with IBD management guidelines that should consider the non-specialist incorporation in IBD management.

In conclusion, young physicians are the first line of defense and they are usually responsible for the initial diagnosis of IBD and subsequently refer patients to specialists. Although there is acceptable, knowledge and attitude of physicians toward the IBD management in comparison to highly qualified and specialist physicians, there are multiple points of improvement, including regular educational activities, formulation of national IBD and CRC screening guidelines that should consider not only specialists but also other specialties caring IBD patients.

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