

Short communication

## A descriptive study on prescribing pattern of drugs and colon diseases at Benghazi Medical Center in Libya

Antesar M. Boshhiha\*, Zahia M. Boshaiha, Raja A. Altera, Amira M. Alarofy, Fardos R. Mohamed

Department of Pharmaceutics, Faculty of Pharmacy, University of Benghazi, Benghazi, Libya



**Mediterranean Journal of  
Pharmacy and Pharmaceutical  
Sciences**

### Article information

**Received**  
17-08-2021

**Revised**  
12-09-2021

**Accepted**  
19-09-2021

**Published**  
30-09-2021

\*Corresponding Author

[Antesar.Boshheha@uob.edu.ly](mailto:Antesar.Boshheha@uob.edu.ly)

DOI 10.5281/zenodo.5534588

**Keywords:** Colon, colon diseases, drug-prescribing, Libya, physician, questionnaire, ulcerative colitis.

Copyright © 2021 Boshhiha A.M. et al. Published by Mediterranean Journal of Pharmacy and Pharmaceutical Sciences. This is an open access article distributed under the Creative Commons Attribution 3.0 International License (CC BY, <http://creativecommons.org/licenses/by/3.0/>), which permits use, duplication, adaptation, distribution, and reproduction in any medium or format, provided an appropriate credit is given to the author(s), the source, and the original work is properly cited.

**HOW TO CITE THIS:** Boshhiha A.M., Boshaiha Z.M., Altera R.A., Alarofy A.M. & Mohamed F.R. (2021) A descriptive study on prescribing pattern of drugs and colon diseases at Benghazi Medical Center in Libya. *Mediterr J Pharm Pharm Sci* 1(3): 12-16. <https://doi.org/10.5281/zenodo.5534588>

### Introduction

Colon (large bowel or large intestine) is an organ that is part of the digestive system in the human body. The colon extends from the ileocecal junction to the anus in adults [1, 2]. Bacteria that normally living in colon break down remaining carbohydrate and protein and convert food component into vitamin K and some of the B vitamins [3]. Inflammatory bowel diseases (IBD) as ulcerative colitis which are chronic inflammatory conditions of the gastrointestinal tract. Inconsistent findings among the studies highlight the complex pathogenesis of IBD [4, 5]. However, a significant percentage of IBD patients

continue experiencing symptoms of pain despite resolving inflammation and achieving what appears to be clinical remission [6]. Some patients can require colectomy for medically refractory disease or to treat colonic neoplasia. The therapeutic manner for ulcerative colitis is expanding, and the number of drugs with new targets will rapidly increase in coming years [7].

Polyps and adenoma are two most common colonic diseases. Multiple or large polyps are as regarded high-risk (CRC) (Colorectal cancer) [8]. A malignant polyp is an early carcinoma. It accounts for 0.75-5.6% of large-bowel polyps removed in general diagnostic colonoscopy

practice [9]. CRC is the third most commonly diagnosed malignancy and the second leading cause of cancer death [10, 11]. As the elderly population grows, this can anticipate a concomitant rise in the number of patients with diverticular disease [12]. However, there are complex relations between colonic structure, motility and dietary factors, and it is likely that all of these (and possibly genetic influences) play a role in the pathogenesis to a greater or lesser degree [13]. IBD triggered or aggravated by a poor diet, up to 70% of the risk for colorectal cancer could be prevented through changing the life style. Adjust life style via eliminating behaviors that adversely affect colon health, such as cigarette smoking and lack of exercise. Also, drink more water, while dehydration can contribute to hard painful stools and slow bowel movement [14].

Studying drug use pattern among medical practitioners is the main goal especially that drug use in the treatment of colon diseases is the vital defense to guard against the complicating of the colon diseases. There is knowledge thirst from our research group to assess, the pattern of prescribing practices among the general practitioners in Benghazi. Bad prescribing practices leads to ineffective and unsafe treatment, exacerbation or prolongation of illness, distress and harm to the patient at a higher cost. Worldwide, more than 50% of all medicines are prescribed, dispensed or sold inappropriately while 50% of patients fail to take them correctly [15, 16].

Many studies were carried out on the drug use practices in developed and developing countries, using WHO and International Network for the Rational Use of Drugs (INRUD) standard set of drug indicators to measure the drug use practices at the country level and at various regional as well as individual facilities [17].

The rationale of this study is to provide information on the areas of the public healthcare policymakers that may need improvement in order to ensure rational drug policy, therapeutic towards colon disease treatment.

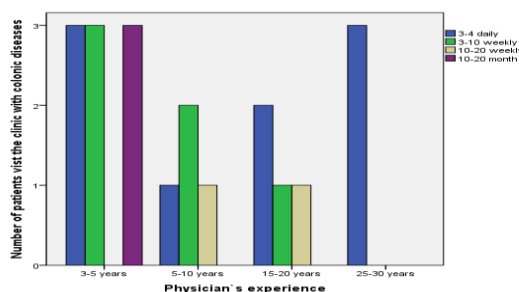
## Materials and methods

A questionnaire survey was comprised of 15 questions distributed to the physicians specialized in medicine at Benghazi Medical Center [BMC] during 2020 and they fill it voluntarily. The initial questions designed to obtain general demographic data concerning the physicians who diagnose the colon diseases. The rest part of the questionnaire was concerning special questions to define frequency of the diagnosed disease. There were 20 participants at this study. The response to all the

questionnaires collected and presented by means of descriptive statistics.

## Results and discussion

This study has been carried out at BMC at Benghazi on Libyan patients to search for occurrence and epidemiology of colonic diseases and tendency of to transform into colonic cancer. Colon diseases are classified as benign (noncancerous) or malignant (cancerous). They can cause symptoms including bleeding, infection and perforation. The pattern of prescribing drugs targeting colon diseases reflects the physician understanding of the disease process, his knowledge, experience and application of pharmacotherapeutic. Indeed, it has recently been reported that the knowledge of physicians with colon diseases medication prescription appears to be higher when education is provided. This is important since physicians are responsible for early identification and referral of patients suspected of having colon diseases, to specialists [18]. This study reveals that the age of the physician participates is related to their education level. Most of the physicians are Bachelor's holders while very few physicians who participated have a higher academic degree (specialist). However, only one is an assistant professor in Medical Sciences at BMC. In **Figure 1**, the frequency of patients with colonic diseases to the clinic varied in relation to physician experience. The most physician groups undergo this study demonstrated that the patients frequently visit BMC on daily to weekly visit. In addition, the least experienced physician demonstrates that there are some patients visit the clinic monthly.



**Figure 1:** Physician experience and number of patients visit BMC with colonic diseases

**Figure 2** demonstrates number of patients visits the clinic with colonic diseases and the most frequent symptoms associated with colon disease2. This is in line with previous study about hospitalization of the patients with colon diseases [19]. Thus, the most frequent symptoms associated with colon disease were cramping and gases on

daily measure than other symptoms include diarrhea, fatigue and constipation [6]. The patients visiting the BMC every 3 - 10 weeks complaining from diarrhea, gases and cramping as well as constipation, respectively, on the same measure. The patients visiting the BMC every 10 - 20 weeks complain from gases and cramping, fatigue as well, respectively, on the same level. Moreover, the patients visiting the BMC every 10 - 20 months complaining from gases and cramping than constipation.

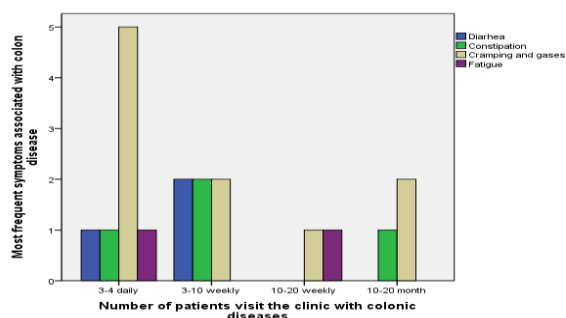


Figure 1: Patients visits BMC with symptoms associated with colon diseases

In Figure 3, the most common colonic diseases were irritable bowel syndrome to the patients of age 15 - 25 years and 25 - 35 years, respectively. Ulcerative colitis (Crohn's disease) start to present with patient of age 35 - 45 years, followed by patients of age 45 - 55 years. Indeed, the duration and onset account for elderly patients than young patients [20]. Colorectal cancers start usually with patient group of 45 - 55 years. More, polyps appear mostly with patients of age range of 35 - 45 years.

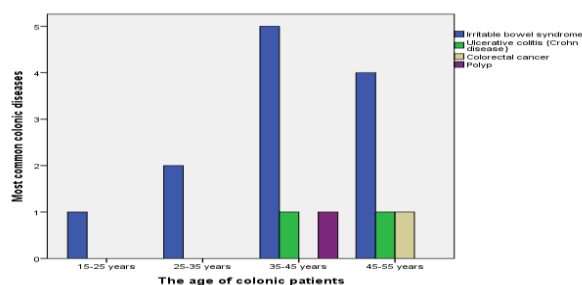


Figure 3: Distribution of age of patients and the most common colon diseases

Figure 4 shows the most injured colonic part is the rectum in the whole patients' groups presented to this study. Transverse and sigmoid colon are the most injured colonic part of the patients in the age range of 25 - 35 old years. Sigmoid colon is the most injured colonic part of the patients in the age range of 35 - 45 old years than the descending colon and rectum, respectively. Further, sigmoid colon is the most injured colonic part of the

patients in the age range of 45 - 55 years old than the ascending colon and rectum, respectively. The major reason for colonic disease is hereditary in all patients having age range of 25 - 55 years shown in Figure 5.

The major reason for colonic disease is the life-style in the patients having age range of 15 - 25 years. This finding is in line with the previous published studies [3, 5]. The major reasons for colonic disease are hereditary and unhealthy food followed by psychological reasons, life-style and viral infections, respectively, in the patients group having age range of 35 - 45 years. Also, the major reasons for colonic disease are hereditary followed by unhealthy food and life style, respectively, in the patients group having age range of 45 - 55 years. Those results indicate that as the age of patients group increases the tendency to have a colon disease is increased, especially with consuming unhealthy food and uncomfortable life style.

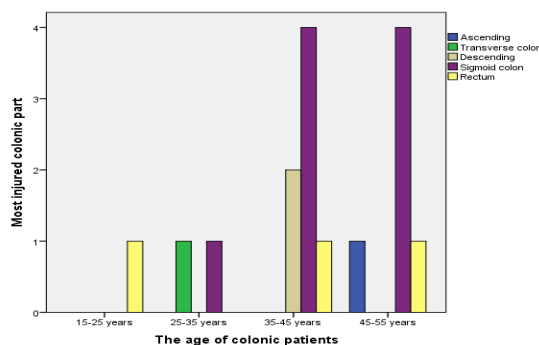


Figure 4: Distribution of patients visiting BMC and the most injured colonic part

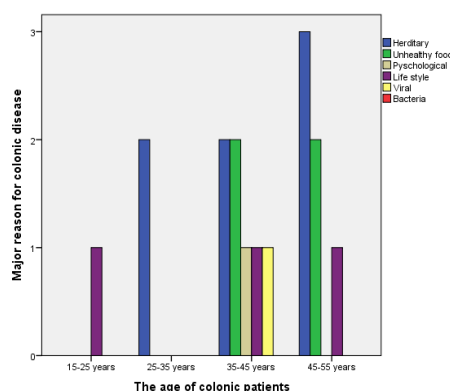
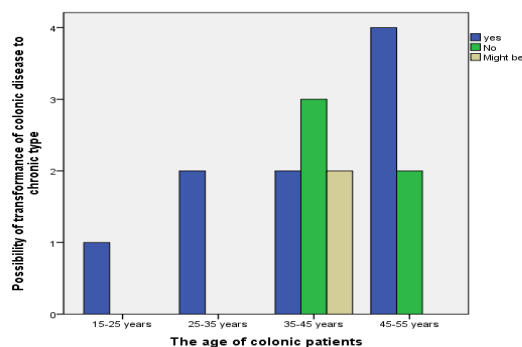


Figure 5: Age of colonic patients and major reason for colonic disease

The role of early diagnosis and usefulness in preventing colonic cancer development was strongly recommended by all physicians participate at this study. Physicians with

15 - 20 years of experience appear partially to indicate that early diagnosis does not play a role in preventing the colonic cancer development [16, 18]. The focus was to describe the types and number of medicines prescribed by physicians, to examine the prevalence and extent of polypharmacy. The most frequent medicines prescribed to the patients with colonic diseases appear to be Hyoscine-N-butyl bromide followed by mebeverine to the patients of age range 35 - 45 years old. The patients of age range 45 - 55 years old administer Hyoscine-N-butyl bromide, mebeverine, Sulpiride plus Mebeverine HCl and domperidone maleate, and chlordiazepoxide plus clidinium, respectively. Assessment of drug use patterns with World Health Organization (WHO) Drug Use Indicators is becoming increasingly necessary towards promoting rational drug use in the developing countries. Prescription analysis using the core drug use indicators set by WHO is routinely employed to indicate the trends of prescribing by physicians [15]. In general, prescribing drugs for gastrointestinal disorders in Benghazi does not seem to follow these guidelines [15]. Transference of colonic diseases to a chronic type was argued via the physicians to all the colonic diseased patients as illustrated in **Figure 6**. The patients having age range of 35 - 45 years old and 45 - 55 years old might not transform their symptoms into chronic type quickly as the other older people.



**Figure 6:** Age of colonic patients and possibility of transfer of colonic diseases to chronic type

Despite the new and ever expanding array of medications for the treatment of inflammatory bowel disease (IBD), there are still clear indications for operative management of IBD and its complications [21]. The need of surgery was recommended by the physicians to the whole patient's groups visiting BMC with colon diseases. The need of surgery was mostly urgent to the patients in the age range of 35 - 45 years and 45 - 55 years, respectively. The need for surgical operation could be omitted or delayed to the patients of age range 25 - 35 years. This

delay cannot be carried out for long period to the patients in the age range of 35 - 45 years. This delay of the surgical solution was carried out partially to the patients of age range 45 - 55 years. The number of cases subjected to surgery varies with the patient's age. The patients having age range of 25 - 35 years need surgical operations 2 - 10 cases per month followed by 10 patients monthly. The patients having age range of 35 - 45 years need surgical operations 2 - 10 cases per month followed by 1 - 5 cases weekly and 10 patients monthly. In addition, the patients having age range of 45 - 55 years old need surgical operations for 10 cases per month followed by 1 - 5 cases weekly. About 25%-35% of ulcerative colitis patients will ultimately require surgery for either a complication of the disease or inadequate control of symptoms [9, 21].

## Conclusion

Drug use studies are a basic tool for assessing prescribing patterns in hospitals, recognizing areas for improvement and improving drug-prescribing practices in these facilities. As the correct prescribing and use of medicines reduces the rate of disease exacerbation. Educating people to know about the disease and causes, and early diagnosis may increase the chance of a cure for the disease. Changing the life style into healthy mode encourage the chances of cure from such colonic diseases.

## Author's contribution

All authors contributed equally.

## Acknowledgements

The authors gratefully acknowledge Prof. Abdelghffar F Abdelghffar (The Libyan Centre of Actuarial Studies) for his assistance.

## Conflict of Interest

The authors declare that they have no competing interests.

## References

1. Maqboo A (2013) Colon: structure, function, and disorders. In: Encyclopedia of Human Nutrition (3<sup>rd</sup> Ed.), Editor: Caballero B. Academic Press. USA. pp 378 - 396. doi.org/10.1016/B978-0-12-375083-9.00059-3.
2. Sulaiman S, Marciani L (2019) MRI of the colon in the pharmaceutical field: The future before us. *Pharmaceutics*. 11 (4): 146. doi: 10.3390/pharmaceutics11040146.
3. Precup G, Vodnar DC (2019) Gut *Prevotella* as a possible biomarker of diet and its eubiotic versus dysbiotic roles: a comprehensive literature review. *British Journal of Nutrition*. 122 (2): 131-140. doi: 10.1017/S0007114519000680.
4. Rubin DC, Shaker A, Levin MS (2012) Chronic intestinal inflammation: inflammatory bowel disease and colitis-associated colon cancer. *Frontiers in Immunology*. 8 (3): 107. doi: 10.3389/fimmu.2012.00107.

5. Frolkis A, Dieleman LA, Barkema HW, Panaccione R, Ghosh S, Fedorak RN, Madsen K, Kaplan GG, Consortium AIBD (2013) Environment and the inflammatory bowel diseases. *Canadian Journal of Gastroenterology*. 27 (3): e18-24. doi: 10.1155/2013/102859.
6. Bielefeldt K, Davis B, Binion DG (2009) Pain and inflammatory bowel disease. *Inflammatory Bowel Diseases*. 15 (5): 778-788. doi: 10.1002/ibd.20848.
7. Ungaro R, Mehandru S, Allen PB, Peyrin-Biroulet L, Colombel J-F (2017) Ulcerative colitis. *Lancet*. 2017. (10080): 1756-1770. doi: 10.1016/S0140-6736(16)32126-2.
8. Huck MB, Bohl JL (2016) Colonic polyps: diagnosis and surveillance. *Clinical Colon Rectal Surgery*. 29 (4): 296-305. doi: 10.1055/s-0036-1584091.
9. Williams JG, Pullan RD, Hill J, Horgan PG, Salmo E, Buchanan GN, Rasheed S, McGee SG, Haboubi N (2013) Management of the malignant colorectal polyp: ACPGBI position statement. *Colorectal Disease*. 15 (S2): 1-38. doi: 10.1111/codi.12262.
10. Keum N, Giovannucci E (2019) Global burden of colorectal cancer: emerging trends, risk factors and prevention strategies. *Nature Reviews Gastroenterology and Hepatology*. 16 (12): 713-732. doi: 10.1038/s41575-019-0189-8.
11. Jung G, Hernández-Illán E, Moreira L, Balaguer F, Goel A (2020) Epigenetics of colorectal cancer: biomarker and therapeutic potential. *Nature Reviews Gastroenterology and Hepatology*. 2020. 17(2): 111-130. doi: 10.1038/s41575-019-0230-y.
12. Stollman N, Raskin JB (2004) Diverticular disease of the colon. *Lancet*. 363 (9409): 631-639. doi: 10.1016/S0140-6736(04)155979.
13. Simpson J, Scholefield JH, Spiller RC (2002) Pathogenesis of colonic diverticula. *The British Journal of Surgery*. 89 (5): 546-554. doi: 10.1046/j.1365-2168.2002.02076.x.
14. MacDermott RP (2007) Treatment of irritable bowel syndrome in outpatients with inflammatory bowel disease using a food and beverage intolerance, food and beverage avoidance diet. *Inflammatory Bowel Diseases*. 13 (1): 91-96. doi: 10.1002/ibd.20048.
15. Aljarari NMH, Sharif SI, Jaber AK, Garini AS, Awad AS, Hamed FA (2016) Prescribing patterns of gastrointestinal drugs in private clinics in Benghazi-Libya. *International Journal of Basic and Clinical Pharmacology*. 6 (1): 113-116. doi.org/10.18203/2319-2003.ijbcp20164763.
16. Hazel K and O'Connor A (2020) Emerging treatments for inflammatory bowel disease. *Therapeutic Advances in Chronic Diseases*. 11:2040622319899297. doi: [10.1177/2040622319899297](https://doi.org/10.1177/2040622319899297).
17. El Mahalli AA (2012) WHO/INRUD drug prescribing indicators at primary health care centers in Eastern province, Saudi Arabia. *Eastern Mediterranean Health Journal*. 18 (11): 1091-1096.
18. Alharbi R, Almahmudi F, Makhdoom Y, Mosli M (2019) Knowledge and attitudes of primary healthcare physicians toward the diagnosis and management of inflammatory bowel disease following an educational intervention: A comparative analysis. *Saudi Journal of Gastroenterology*. 25 (5): 227-285. doi: [10.4103/sjg.SJG\\_169\\_19](https://doi.org/10.4103/sjg.SJG_169_19).
19. Baidoo L (2017) Management of hospitalized patients with ulcerative colitis. *Gastroenterology and Hepatology*. 13 (3): 180-183. PMID: PMC543913
20. Hinojosa del Val J (2011) Old-age inflammatory bowel disease onset: A different problem? *World Journal of Gastroenterology*. 17 (22): 2734-2739. doi: 10.3748/wjg.v17.i22.2734.
21. Hwang JM, G Varma MG (2008) Surgery for inflammatory bowel disease. *World Journal of Gastroenterology*. 14 (17): 2678-2690. doi: 10.3748/wjg.14.2678.