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The impact of clinical experience on decision-making regarding the treatment and management of mild-to-moderate ulcerative colitis

Jae Hee Cheon[1], Kristine Paridaens[2], Sameer Al Awadhi[3], Jakob Begun[4], John R Fullarton[5], Edouard Louis[6], Fernando Magro[7,8], Juan Ricardo Marquez[9], Alexander R Moschen[10], Neeraj Narula[11], Grazyna Rydzewska[12,13], Axel U Dignass[14], Simon PL Travis[15]

[1]Institute of Gastroenterology, Yonsei University College of Medicine, Seoul, Korea; [2]Ferring International Center, St-Prex, Switzerland; [3]Department of Gastroenterology, Rashid Hospital, Dubai Health Authority, Dubai, United Arab Emirates; [4]Department of Gastroenterology, Mater Hospital Brisbane, Brisbane, Australia; [5]Violicom Medical Limited, Aldermaston, UK; [6]Department of Hepato-Gastroenterology and Digestive Oncology, University and Centre Hospitalaire Univestitaire (CHU) Liège, Liège, Belgium; [7]Department of Biomedicine, Unit of Pharmacology and Therapeutics, University of Porto, Porto; [8]Department of Gastroenterology, São João University Hospital Center, Porto, Portugal; [9]Instituto de Coloproctologia ICO Clinica Las Americas, Medellin, Colombia; [10]Department of Internal Medicine, Gastroenterology and Hepatology, Kepler University Hospital, Faculty of Medical, Johannes Kepler University, Linz, Austria; [11]Division of Gastroenterology, Department of Medicine and Farncombe Family Digestive Health Research Institute, McMaster University, Hamilton, ON, Canada; [12]Clinical Department of Internal Medicine and Gastroenterology with Inflammatory Bowel Disease Subdivision, The Central Clinical Hospital of the Ministry of the Interior Affairs and Administration, Warsaw; [13]Collegium Medicum, Jan Kochanowski University, Kielce, Poland; [14]Department of Medicine I, Agaplesion Markus Hospital, Goethe-University, Frankfurt am Main, Germany; [15]NIHR Oxford Biomedical Research Centre, Oxford University Hospitals NHS Foundation Trust, John Radcliffe Hospital, Oxford, UK

To explore current thinking and decision-making in the management of mild-to-moderate ulcerative colitis (UC), we recently undertook detailed, survey-based research with healthcare professionals experienced in its routine management.[1] Results demonstrated that the current management approach for mild-to-moderate UC was guided by patients' perspectives and goals as well as assessment of their medical and disease history. Optimization of 5-aminosalicylic acid (5-ASA) was considered a central tenet of this management approach as was providing patients with disease education and long-term support.[1] It is recognized, however, that the approach to treatment and management of UC varies with the experience of the treating clinician. For example, it has been reported that adherence to clinical guidelines for UC and 5-ASA optimization was more common among inflammatory bowel disease (IBD) specialists than general gastroenterologists.[2] To further investigate how clinical experience influences decision-making in UC, we assessed this aspect in a sub-analysis of our study.

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Correspondence to Simon PL Travis, Oxford University Hospitals NHS Foundation Trust, John Radcliffe Hospital, Oxford OX3 9DU, UK. Tel: +44-1865-227777, E-mail: simon.travis@ndm.ox.ac.uk

The study methodology and participation have been fully described elsewhere.[1] In brief, 157 factors potentially related to the management of patients with mild-to-moderate UC were cataloged across 2 meetings with 11 IBD specialists from different countries (Supplementary File 1). This catalog formed the basis of a structured, online questionnaire that objectively assessed the importance and contribution of each of the factors when considering one of 3 defined scenarios: (1) when your patient presents with active mild-to-moderate UC; (2) when your patient achieves remission following a mild-to-moderate UC flare; and (3) self-management and empowerment of patients with mild-to-moderate UC (Supplementary File 1). For each scenario, individual factors were scored on

Table 1. Top 25 Factors Contributing Most Strongly to Clinical Decision-Making across All 3 Scenarios in Multivariate Analysis According to Healthcare Professionals Experience[a]

Rank	≤ 10 years' experience as consultant	Loading[b]	> 10 years' experience as consultant	Loading[b]
1	Consideration of the patient's priorities	1.44176	Spending time with patients to educate them about their disease	1.74546
2	Discussion of other treatment options including dose optimization if the patient is complaining	1.35474	Empower the patient to comply with treatment by education about taking control of their lifelong disease	1.71184
3	If the diagnosis is mainly proctitis, then the focus should be on topical therapy	1.28097	Educating patients that after 8 years of remission under self-management they may need to think about getting checked for colon cancer	1.62321
4	Evaluation of patient-reported outcomes	1.27074	Communicating with the patient and fully discussing the therapeutic options	1.54253
5	Education of the patient that adherence to treatment contributes to staying in remission	1.26619	Informing the patient about different treatment options in case of relapse	1.40111
6	Empower the patient to comply with treatment by education about taking control of their lifelong disease	1.24751	Consideration of good quality of life as the ultimate goal	1.39107
7	Whether the patient has more than 2 relapses within a year	1.24744	Consideration of the patient's priorities	1.38313
8	Consideration of how to increase adherence to treatment by discussing different treatment options	1.22443	Engaging the patient in their management through education and understanding their disease	1.36954
9	Keeping on 5-ASA for maintenance	1.20303	Re-assuring the patients who may be worried or anxious or feel stigmatized about a diagnosis of UC	1.31937
10	Communicating with the patient and fully discussing the therapeutic options	1.18654	Discussion of other treatment options including dose optimization if the patient is complaining	1.29268
11	Engaging the patient in their management through education and understanding their disease	1.15988	Evaluation of patient-reported outcomes	1.27312
12	Consideration of whether steroids were used to treat the last flare and for how long	1.15284	Educating the patient on when to seek hospital help or simply communicate with nurses or physicians	1.21947
13	Knowledge of prior steroid therapy in terms of tolerability and (duration of) response in this patient	1.14426	Education of the patient that adherence to treatment contributes to staying in remission	1.18309
14	Educating patients that after 8 years of remission under self-management they may need to think about getting checked for colon cancer	1.11688	Evaluate disease activity e.g., frequency of bowel movement, blood in stool, abdominal pain to guide treatment choices	1.15397
15	Consideration of the patient's history of adherence to treatment	1.11328	Whether the patient has more than 2 relapses within a year	1.15004
16	Establishing contingency plans with the patient in case of relapse	1.10797	Goals of therapy may change with time	1.12751
17	Ensuring that the patient is still in full remission	1.09711	Patient's history of prior treatment (s) and response (s)	1.10814
18	Optimizing 5-ASA dose post-flare to avoid future relapses	1.08640	Let patients know that your interests align with their interests, and they should continue to comply with medical recommendations	1.09215
19	Challenges in persuading the patient to use rectal therapy, especially if disease is confined to the rectum	1.05239	Usefulness of "top and tail" (oral and rectal) therapy for proctitis and distal colitis	1.07814
20	After a second or third course of steroids whether 5-ASA may not be maintaining the patient well enough	1.02339	Giving the patient a personalized structured plan of how to manage their medication in remission	1.04708
21	Spending time with patients to educate them about their disease	1.01786	Understanding how the previous flare was treated	1.00879
22	Checking compliance especially with rectal treatment	0.99982	Establishing contingency plans with the patient in case of relapse	0.99874

(*Continued to the next page*)

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Table 1. Continued

Rank	≤ 10 years' experience as consultant	Loading[b]	> 10 years' experience as consultant	Loading[b]
23	Understanding how the previous flare was treated	0.99545	Consideration that patient focus on functional symptoms post-flare may lead them to consider that treatment is not working	0.99764
24	Evaluate disease activity e.g., frequency of bowel movement, blood in stool, abdominal pain to guide treatment choices	0.99456	Educating patients on increasing rectal therapy when there is blood in the stool	0.99214
25	Consideration of the severity of disease at initial diagnosis	0.94804	Consideration of whether steroids were used to treat the last flare and for how long	0.99196

[a]Principal component analysis that encompassed the majority of the data variance for each experience group. Shaded factors are those related more to patient communication, education and feedback versus more clinically related factors.
[b]The loading is the relative weighting of each factor within the principal component as evaluated from the pole with which the scenarios are most closely associated.
UC, ulcerative colitis; 5-ASA, 5-aminosalicylic acid.

end-anchored analogue scales from zero (very unimportant) to 100 (very important). Factors could also be scored as "not relevant." Demographic details including country of practice, position (job title), years' experience in gastroenterology, and time spent managing patients with IBD were captured as optional fields on the questionnaire.

In the present analysis, the following questions were addressed: (1) Is level of experience a valid differentiator of decision-making? (2) If so, what factors are considered by the different experience level groups? (3) How do the factors fit together in a decision network for each group?

Question 1 was addressed using Q-factor discriminant function analysis (DFA) in which respondents were categorized according to their level of experience (1–3, 4–5, 6–10, or >10 years in gastroenterology). In contrast to standard DFA, Q-factor DFA reverses the analytical role of the respondents and factors, by using respondents as independent variables and factors as cases. As such, the results of the analysis provide insight as to how respondents group together around scenarios (as opposed to how factors group together around scenarios). Question 2 was addressed using principal component analysis, which identified the most important factors across all 3 scenarios. And question 3 by hierarchical cluster analysis, which assembled and stacked hierarchically individual factors with mean scores one standard deviation above 50 (for positive associations) or below 50 (for negative associations) within a scenario. In both cases, analyses were carried out in those respondents with ≤10 years' experience versus >10 years in gastroenterology. For all analyses, missing data were handled using the individual factor mean for each scenario.

Fifty-six responses were received from Europe and North America (n=25, 45%), South America (n=19, 34%), and the Middle East, Asia and Australia (n=12, 21%). Among the respondents, 93% (n=52) were consultant/specialist level, 5% (n=3) trainees and 2% (n=1) unknown. Most respondents were from academic centers (n=47, 89%), whilst just over two-thirds (n=38; 68%) spent ≥25% of their time managing patients with IBD. The majority (n=33, 58%) of respondents had >10 years' experience, 18% (n=10) had 6–10 years, 14% (n=8) had 4–5 years and 4% (n=2) had 1–3 years; 5% (n=3) were unknown and excluded from the analyses described herein.

The level of experience of respondents was found to be associated with different decision-making across the 3 scenarios, with clear discrimination between respondents with >10 years' experience and the other groups (DFA component 1 [91.0% of variance] top 3 loadings 0.122 to 0.158 vs. –0.187 to –0.319, respectively).

Among the clinicians with >10 years' experience, there was a strong focus on patient education, discussion of treatment options and understanding the patient's perspective and priorities. These made up the top 13 most important factors and 17 of the top 25 overall, with the remainder being more clinically-related (Table 1).

Among the group with ≤10 years' experience, the focus was less marked, with a more even split between patient-related (11/25) and clinically-related (14/25) factors. This was further elucidated in the decision network, where the more experienced clinicians focused on fewer (n=7) patient-related factors as overarching themes in their decision-making (Fig. 1A), whereas the less experienced clinicians considered a far greater number of patient and clinical factors (n=42) as being of overall importance (Fig. 1B). Conversely, experienced clini-

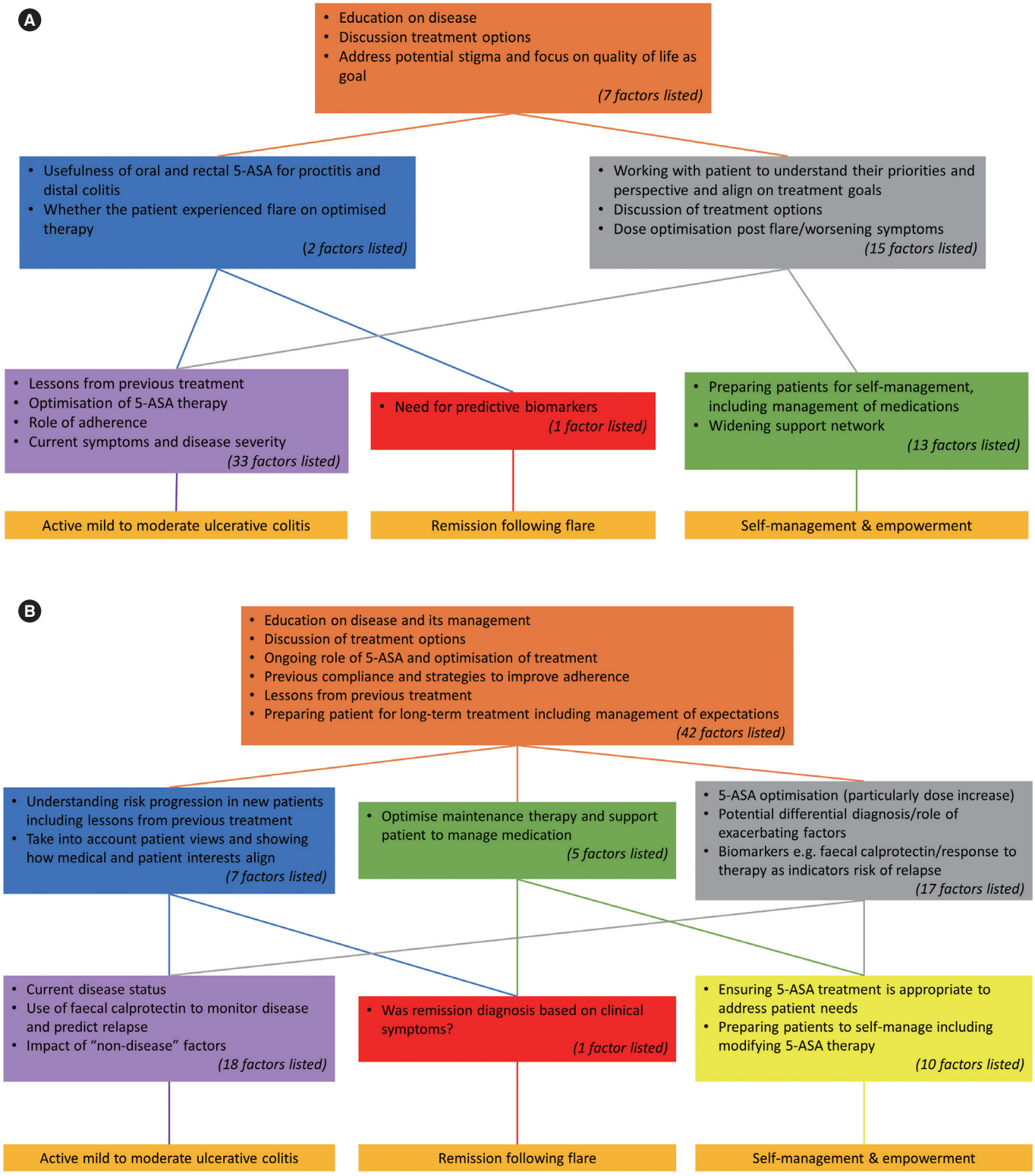

Fig. 1. Decision network among clinicians with > 10 years' experience (A) and with ≤ 10 years' experience (B). 5-ASA, 5-aminosalicylic acid.

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cians tended to consider more factors when focused on the individual management scenarios than their less experienced counterparts (47 vs. 29, respectively), driven, in particular, by patients with active disease (33 vs. 18).

In patients with active disease, experienced clinicians relied on lessons from previous response to treatment, indicators of disease severity, adherence history and the role of 5-ASA optimization in successfully re-establishing and maintaining disease control. For self-management, the focus was on giving the patient the right information, tools and access to advice to prepare them for taking greater control of their own treatment. The remission scenario was strongly associated with the need for predictive biomarkers, such as fecal calprotectin. A similar array of factors was considered by the less experienced clinicians, though with more apparent overlap between scenarios. For example, there was greater overlap in the factors that were important to the active disease and remission following flare scenarios (17 factors in common vs. 2 in common in the more experienced group). Overall, experienced clinicians considered approximately 30% fewer factors as important for decision-making (71 vs. 100 for ≤10 years' experience).

The results of this analysis suggest that all clinicians, regardless of experience, take a patient-focused approach to management. However, those with greater experience appear more confident, or put more general emphasis on, ensuring patients fully understand their disease, available treatment options and requirements of long-term therapy as the foundation for treatment decisions, independent of the patient's disease status. With studies reporting that direct patient engagement as part of the management approach can improve adherence and treatment outcomes in UC,[3,4] the broad recognition of the importance of such considerations seen in our study is encouraging. Optimization of 5-ASA therapy was a key theme for both more and less experienced clinicians. Considerations around optimization reflect the available strategies advocated in the literature, including combined oral and topical therapy and use of increased doses.[5,6]

Less experienced clinicians tended to give greater weight to a broader range of factors across all 3 scenarios resulting in a more complex and "top-heavy" decision network. This suggests less confidence in a patient-led approach than in the more experienced group, with a tendency to try and consider more factors at every stage. It probably indicates more variability in decision-making by less experienced clinicians. These results are perhaps not surprising and highlight the importance of educating younger clinicians on how best to treat mild-to-moderate UC, since this is a disease requiring a holistic approach to management. Further training may involve educational meetings and webinars, courses supported by key societies, such as the Asian Organization for Crohn's and Colitis and the European Crohn's and Colitis Organisation, and, for those clinicians practicing in more general hospitals, the shadowing of specialists in major IBD centers. Important aspects to cover would include the adoption of a treat-to-target strategy,[7] with an additional focus on interactions with patients.

ADDITIONAL INFORMATION

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Conflict of Interest

Cheon JH has received personal fees from Celltrion Inc., Eisai Korea, Ferring Korea, IQVIA, Ferring, Janssen Korea, Shire Korea, and Takeda Korea. Paridaens K is an employee of Ferring Pharmaceuticals. Al Awadhi S has participated in advisory board for Ferring. Begun J has received honoraria, research grants or consulting fees from AbbVie, Janssen, Takeda, Pfizer, Ferring, Bristol-Myers Squibb, Gilead, Tillotts, Sandoz, Chiesi, Celltrion, Microba, and Antara. Fullarton JR is an employee of Violicom Medical Limited that has received funding from Ferring for work on various projects. Louis E has received research grants from Janssen, Pfizer, and Takeda; educational grants from AbbVie, Janssen, MSD, and Takeda; speaker fees from AbbVie, Falk, Ferring, Hospira, Janssen, MSD, Pfizer, and Takeda; participated in advisory boards for AbbVie, Celgene, Ferring, Hospira, Janssen, MSD, Pfizer, Takeda, Galapagos, Gilead, Arena, Elli Lilly; consultant for AbbVie. Magro F has served as speaker and received honoraria from AbbVie, Biogen, Bristol-Myers Squibb, Falk, Ferring, Hospira, Janssen, Laboratórios Vitoria, Pfizer, Lilly, Merck Sharp & Dohme, Sandoz, Takeda, UCB, and Vifor. Marquez JR has received sponsorship as speaker from AbbVie, Biopas, Biotoscana, Farma, Ferring, Janssen, and Takeda. Moschen AR is receiving research support from AbbVie and Takeda under the framework of the Christian Doppler Research Society; has received further consultation fees and/or speaker honoraria from AbbVie, Merck Sharp & Dohme, Takeda, Janssen-Cilag, Amgen, Sandoz, Nestlé, Ferring, Falk, and Pfizer. Narula N has received grants, advisory board fees, or speakers bureau honoraria from Janssen, AbbVie, Takeda, Pfizer, Merck, Sandoz, Novartis,

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Not applicable.

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Conception and design of study: Travis SPL, Paridaens K, Fullarton JR. Acquisition of data: Cheon JH, Travis SPL, Al Awadhi S, Begun J, Louis E, Magro F, Marquez JR, Moschen AR, Narula N, Rydzewska G, Dignass AU. Statistical analysis: Fullarton JR. Interpretation of results and approval of the final version of the manuscript: all authors.

ORCID

Cheon JH	https://orcid.org/0000-0002-2282-8904
Paridaens K	https://orcid.org/0000-0001-6865-5415
Al Awadhi S	https://orcid.org/0000-0002-1611-3451
Begun J	https://orcid.org/0000-0001-5256-7672
Fullarton JR	https://orcid.org/0000-0001-9429-5994
Louis E	https://orcid.org/0000-0002-1287-7075
Magro F	https://orcid.org/0000-0003-2634-9668
Marquez JR	https://orcid.org/0000-0003-2691-636X
Moschen AR	https://orcid.org/0000-0003-3598-7848
Narula N	https://orcid.org/0000-0002-1536-8436
Rydzewska G	https://orcid.org/0000-0002-1267-7620
Dignass AU	https://orcid.org/0000-0002-9724-054X
Travis SPL	https://orcid.org/0000-0002-2690-4361

Supplementary Material
Supplementary materials are available at the Intestinal Research website (https://www.irjournal.org).

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