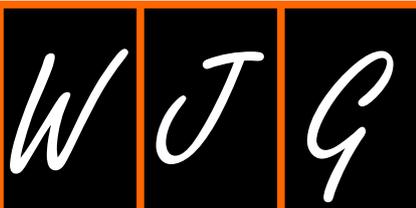


# World Journal of *Gastroenterology*

*World J Gastroenterol* 2017 July 7; 23(25): 4473-4660





### EDITORIAL

- 4473 Challenges of modern day transition care in inflammatory bowel disease: From inflammatory bowel disease to biosimilars

*Hakizimana A, Ahmed I, Russell R, Wright M, Afzal NA*

### REVIEW

- 4480 Expression and role of nuclear receptor coregulators in colorectal cancer

*Triki M, Lapierre M, Cavailles V, Mokdad-Gargouri R*

- 4491 Eubiotic properties of rifaximin: Disruption of the traditional concepts in gut microbiota modulation

*Ponziani FR, Zocco MA, D'Aversa F, Pompili M, Gasbarrini A*

### MINIREVIEWS

- 4500 Localization and role of metabotropic glutamate receptors subtype 5 in the gastrointestinal tract

*Ferrigno A, Berardo C, Di Pasqua LG, Siciliano V, Richelmi P, Vairetti M*

### ORIGINAL ARTICLE

#### Basic Study

- 4508 Treatment with dimethyl fumarate ameliorates liver ischemia/reperfusion injury

*Takasu C, Vaziri ND, Li S, Robles L, Vo K, Takasu M, Pham C, Farzaneh SH, Shimada M, Stamos MJ, Ichii H*

- 4517 Enhanced electrogastrography: A realistic way to salvage a promise that was never kept?

*Poscente MD, Mintchev MP*

- 4529 Glutamine prevents oxidative stress in a model of portal hypertension

*Zabot GP, Carvalhal GF, Marroni NP, Licks F, Hartmann RM, da Silva VD, Fillmann HS*

- 4538 Hepatitis C virus NS5A region mutation in chronic hepatitis C genotype 1 patients who are non-responders to two or more treatments and its relationship with response to a new treatment

*Muñoz de Rueda P, Fuentes Rodríguez JM, Quiles Pérez R, Gila Medina A, Martín Álvarez AB, Casado Ruíz J, Ruíz Extremera Á, Salmerón J*

- 4548 Distinct gut microbiota profiles in patients with primary sclerosing cholangitis and ulcerative colitis

*Bajer L, Kverka M, Kostovcik M, Macinga P, Dvorak J, Stehlikova Z, Brezina J, Wohl P, Spicak J, Drastich P*

- 4559** Anti-inflammatory and anti-apoptotic effects of rosuvastatin by regulation of oxidative stress in a dextran sulfate sodium-induced colitis model

*Shin SK, Cho JH, Kim EJ, Kim EK, Park DK, Kwon KA, Chung JW, Kim KO, Kim YJ*

- 4569** miR-29a promotes hepatitis B virus replication and expression by targeting SMARCE1 in hepatoma carcinoma

*Wu HJ, Zhuo Y, Zhou YC, Wang XW, Wang YP, Si CY, Wang XH*

**Retrospective Cohort Study**

- 4579** Management and outcome of hepatocellular adenoma with massive bleeding at presentation

*Klompshouwer AJ, de Man RA, Thomeer MGJ, Ijzermans JNM*

**Retrospective Study**

- 4587** Chronic hepatitis B, nonalcoholic steatohepatitis and physical fitness of military males: CHIEF study

*Chen YJ, Chen KW, Shih YL, Su FY, Lin YP, Meng FC, Lin F, Yu YS, Han CL, Wang CH, Lin JW, Hsieh TY, Li YH, Lin GM*

- 4595** Comparison of short- and long-term outcomes of laparoscopic vs open resection for gastric gastrointestinal stromal tumors

*Ye X, Kang WM, Yu JC, Ma ZQ, Xue ZG*

**Observational Study**

- 4604** Functional lipidomics in patients on home parenteral nutrition: Effect of lipid emulsions

*Pironi L, Guidetti M, Verrastro O, Iacona C, Agostini F, Pazzeschi C, Sasdelli AS, Melchiorre M, Ferreri C*

- 4615** Cryptogenic multifocal ulcerous stenosing enteritis: Radiologic features and clinical behavior

*Hwang J, Kim JS, Kim AY, Lim JS, Kim SH, Kim MJ, Kim MS, Song KD, Woo JY*

- 4624** Partners of patients with ulcerative colitis exhibit a biologically relevant dysbiosis in fecal microbial metacommunities

*Chen GL, Zhang Y, Wang WY, Ji XL, Meng F, Xu PS, Yang NM, Bo XC*

**Randomized Controlled Trial**

- 4632** Long-term irritable bowel syndrome symptom control with reintroduction of selected FODMAPs

*Harvie RM, Chisholm AW, Bisanz JE, Burton JP, Herbison P, Schultz K, Schultz M*

**EVIDENCE-BASED MEDICINE**

- 4644** Anti-apoptotic effect of banhasasim-tang on chronic acid reflux esophagitis

*Shin MR, An HJ, Seo BI, Roh SS*

**SYSTEMATIC REVIEWS**

- 4654** Nosocomial spontaneous bacterial peritonitis antibiotic treatment in the era of multi-drug resistance pathogens: A systematic review

*Fiore M, Maraolo AE, Gentile I, Borgia G, Leone S, Sansone P, Passavanti MB, Aurilio C, Pace MC*

**ABOUT COVER**

Editorial board member of *World Journal of Gastroenterology*, Ludovico Abenavoli, MD, MSc, PhD, Associate Professor, Health Sciences, University Magna Graecia, Campus Germaneto, Viale Europa, 88100 Catanzaro, Italy

**AIMS AND SCOPE**

*World Journal of Gastroenterology* (*World J Gastroenterol*, *WJG*, print ISSN 1007-9327, online ISSN 2219-2840, DOI: 10.3748) is a peer-reviewed open access journal. *WJG* was established on October 1, 1995. It is published weekly on the 7<sup>th</sup>, 14<sup>th</sup>, 21<sup>st</sup>, and 28<sup>th</sup> each month. The *WJG* Editorial Board consists of 1375 experts in gastroenterology and hepatology from 68 countries.

The primary task of *WJG* is to rapidly publish high-quality original articles, reviews, and commentaries in the fields of gastroenterology, hepatology, gastrointestinal endoscopy, gastrointestinal surgery, hepatobiliary surgery, gastrointestinal oncology, gastrointestinal radiation oncology, gastrointestinal imaging, gastrointestinal interventional therapy, gastrointestinal infectious diseases, gastrointestinal pharmacology, gastrointestinal pathophysiology, gastrointestinal pathology, evidence-based medicine in gastroenterology, pancreatology, gastrointestinal laboratory medicine, gastrointestinal molecular biology, gastrointestinal immunology, gastrointestinal microbiology, gastrointestinal genetics, gastrointestinal translational medicine, gastrointestinal diagnostics, and gastrointestinal therapeutics. *WJG* is dedicated to become an influential and prestigious journal in gastroenterology and hepatology, to promote the development of above disciplines, and to improve the diagnostic and therapeutic skill and expertise of clinicians.

**INDEXING/ABSTRACTING**

*World Journal of Gastroenterology* (*WJG*) is now indexed in Current Contents<sup>®</sup>/Clinical Medicine, Science Citation Index Expanded (also known as SciSearch<sup>®</sup>), Journal Citation Reports<sup>®</sup>, Index Medicus, MEDLINE, PubMed, PubMed Central and Directory of Open Access Journals. The 2017 edition of Journal Citation Reports<sup>®</sup> cites the 2016 impact factor for *WJG* as 3.365 (5-year impact factor: 3.176), ranking *WJG* as 29<sup>th</sup> among 79 journals in gastroenterology and hepatology (quartile in category Q2).

**FLYLEAF**

I-IX Editorial Board

**EDITORS FOR THIS ISSUE**

Responsible Assistant Editor: *Xiang Li*  
Responsible Electronic Editor: *Fen-Fen Zhang*  
Proofing Editor-in-Chief: *Lian-Sheng Ma*

Responsible Science Editor: *Ze-Mao Gong*  
Proofing Editorial Office Director: *Jin-Lei Wang*

**NAME OF JOURNAL**  
*World Journal of Gastroenterology*

**ISSN**  
ISSN 1007-9327 (print)  
ISSN 2219-2840 (online)

**LAUNCH DATE**  
October 1, 1995

**FREQUENCY**  
Weekly

**EDITORS-IN-CHIEF**  
**Damian Garcia-Olmo, MD, PhD, Doctor, Professor, Surgeon**, Department of Surgery, Universidad Autonoma de Madrid; Department of General Surgery, Fundacion Jimenez Diaz University Hospital, Madrid 28040, Spain

**Stephen C Strom, PhD, Professor**, Department of Laboratory Medicine, Division of Pathology, Karolinska Institutet, Stockholm 141-86, Sweden

**Andrzej S Tarnawski, MD, PhD, DSc (Med), Professor of Medicine, Chief Gastroenterology**, VA Long Beach Health Care System, University of California, Irvine, CA, 5901 E. Seventh Str., Long Beach,

CA 90822, United States

**EDITORIAL BOARD MEMBERS**  
All editorial board members resources online at <http://www.wjgnet.com/1007-9327/editorialboard.htm>

**EDITORIAL OFFICE**  
Jin-Lei Wang, Director  
Yuan Qi, Vice Director  
Ze-Mao Gong, Vice Director  
*World Journal of Gastroenterology*  
Baishideng Publishing Group Inc  
7901 Stoneridge Drive, Suite 501,  
Pleasanton, CA 94588, USA  
Telephone: +1-925-2238242  
Fax: +1-925-2238243  
E-mail: [editorialoffice@wjgnet.com](mailto:editorialoffice@wjgnet.com)  
Help Desk: <http://www.f6publishing.com/helpdesk>  
<http://www.wjgnet.com>

**PUBLISHER**  
Baishideng Publishing Group Inc  
7901 Stoneridge Drive, Suite 501,  
Pleasanton, CA 94588, USA  
Telephone: +1-925-2238242  
Fax: +1-925-2238243  
E-mail: [bpgoffice@wjgnet.com](mailto:bpgoffice@wjgnet.com)  
Help Desk: <http://www.f6publishing.com/helpdesk>

<http://www.wjgnet.com>

**PUBLICATION DATE**  
July 7, 2017

**COPYRIGHT**  
© 2017 Baishideng Publishing Group Inc. Articles published by this Open-Access journal are distributed under the terms of the Creative Commons Attribution Non-commercial License, which permits use, distribution, and reproduction in any medium, provided the original work is properly cited, the use is non commercial and is otherwise in compliance with the license.

**SPECIAL STATEMENT**  
All articles published in journals owned by the Baishideng Publishing Group (BPG) represent the views and opinions of their authors, and not the views, opinions or policies of the BPG, except where otherwise explicitly indicated.

**INSTRUCTIONS TO AUTHORS**  
Full instructions are available online at <http://www.wjgnet.com/bpg/gerinfo/204>

**ONLINE SUBMISSION**  
<http://www.f6publishing.com>

## Challenges of modern day transition care in inflammatory bowel disease: From inflammatory bowel disease to biosimilars

Ali Hakizimana, Iftikhar Ahmed, Rachel Russell, Mark Wright, Nadeem A Afzal

Ali Hakizimana, Rachel Russell, Nadeem A Afzal, Department of Paediatrics, University Hospital Southampton, Southampton SO16 6YD, United Kingdom

Iftikhar Ahmed, Department of Gastroenterology, University Hospital Southampton, Southampton SO16 6YD, United Kingdom

Mark Wright, Department of Hepatology, University Hospital Southampton, Southampton SO16 6YD, United Kingdom

Author contributions: All authors contributed to the manuscript.

Conflict-of-interest statement: No potential conflicts of interest relevant to this article were reported.

Open-Access: This article is an open-access article which was selected by an in-house editor and fully peer-reviewed by external reviewers. It is distributed in accordance with the Creative Commons Attribution Non Commercial (CC BY-NC 4.0) license, which permits others to distribute, remix, adapt, build upon this work non-commercially, and license their derivative works on different terms, provided the original work is properly cited and the use is non-commercial. See: <http://creativecommons.org/licenses/by-nc/4.0/>

Manuscript source: Invited manuscript

Correspondence to: Nadeem Ahmad Afzal, MBBS, MRCP, MRCPCH, MD, Department of Paediatrics, University Hospital Southampton, Tremona Road, Southampton SO16 6YD, United Kingdom. [n.afzal@soton.ac.uk](mailto:n.afzal@soton.ac.uk)  
Telephone: +44-238-1208711  
Fax: +44-238-1204750

Received: January 29, 2017

Peer-review started: February 7, 2017

First decision: March 16, 2017

Revised: April 3, 2017

Accepted: May 9, 2017

Article in press: May 9, 2017

Published online: July 7, 2017

### Abstract

In this article we discuss the challenges of delivering a high quality Transition care. A good understanding of the adolescent needs with good communication between Transition care physicians and the patient is essential for good continuity of care. Despite availability of several guidelines, one model doesn't fit all and any transition service development should be determined by the local need and available healthcare facilities.

**Key words:** Transition; Adolescent; Inflammatory bowel disease; Biosimilar

© **The Author(s) 2017.** Published by Baishideng Publishing Group Inc. All rights reserved.

**Core tip:** Adolescent medicine is fast becoming a speciality in its own right. A good understanding of the needs of the adolescent patient is essential for delivering good quality care. Effective communication between Transition Care physicians as well as with their patient is the key to providing good continuity of care. Despite availability of several guidelines, one model doesn't fit all and any transition service development should be determined by the local need and available healthcare facilities.

Hakizimana A, Ahmed I, Russell R, Wright M, Afzal NA. Challenges of modern day transition care in inflammatory bowel disease: From inflammatory bowel disease to biosimilars. *World J Gastroenterol* 2017; 23(25): 4473-4479 Available from: URL:

## INTRODUCTION

I wish to start by first asking our readers a question, "When does an adolescent become an adult?"

Generally, an 18-year-old is considered to be a grown up adult and we will often use this "age cut off" to define many adult services including transition care and 18 would mark either the start or end of Transition care, depending on where you practice. Interestingly, the "Bank of America" and "United States Today" surveyed 2180, 18 to 26 year olds to find only 27% of the respondents characterised themselves as an adult and 1/3<sup>rd</sup> felt adulthood didn't begin until a person was at least 21 years old. The legal drinking age in United States is 21 years which might potentially influence the view. However, it is well known that acquisition of social and financial independence is considered to be important to become an adult, and this "adult age" seems to be ever increasing over the last few decades. This widening gap between adolescence and becoming an adult has now been linked with increasing mental health, behavioural and substance use issues (*e.g.*, smoking, alcohol and cannabis)<sup>[1]</sup> which we may see in our practices and sometimes even in transition care.

Adolescents undergo biological, psychological and social development, whilst growing into adults. However, in teenagers with inflammatory bowel disease (IBD) these three milestones may be delayed. In addition, teenagers will often be taking regular treatments (oral medications and injections) possibly facing issues related to delayed puberty, worried about a shorter final height compared to expected, and then making matters worse when they may start comparing themselves with the peers.

The use of a sharp age cut off to define transition services suddenly appears woolly. Not unsurprisingly, only 5.6% of older adolescents/young adolescents on the verge of transfer to adult care met the gastrointestinal (GI) units benchmark in United States<sup>[2]</sup>.

There are other issues as well. With adolescents facing their own set of problems, practitioners in transition services need to be knowledgeable about these issues. Not just their understanding needs to be good, they also need to be able to relate and communicate well with the teenagers. The reality however is far from it. The Royal College of Paediatrics and Child Health (RCPCH), United Kingdom has launched a very interesting "young adult and transition project" with forum discussions and meetings including patient's stories including a blog by an 18 year old young man, Thine, who helped facilitate such an event<sup>[3]</sup>. Thine with the group raised these poignant issues during discussion forums run on the day: (1)

middle aged doctors in particular compared to other age groups do not know how to communicate with young adults properly; (2) the doctors generally tend to communicate with parents rather than the patients; and (3) some felt that at the point of transfer to the adult services, they had not built up enough confidence to discuss issues openly and confidentially with their new adult consultants.

A number of adult gastroenterology physician surveys have been carried out to highlight the inadequate transition by paediatric gastroenterologists. Ironically, the response rate of adult gastroenterologists to these surveys has been extremely poor being as low as 30% which equally doesn't bode well for the interest or keenness of survey participants<sup>[4-6]</sup>. Accepting all criticisms, with caveats, there is little doubt that IBD-transition care in today's age needs to improve.

These discussions highlight the importance of training practitioners in communication and transitional care practice.

## WHAT IS TRANSITIONAL CARE?

The American Society for Adolescent Medicine defines transitional care as "purposeful planned movement" of adolescent and young adults with chronic physical and medical conditions from child-centred to adult-orientated health-care systems<sup>[7]</sup>.

This definition lays down underpinning principle for transitional care from paediatric to adult services, which is "continuity of care". This has been further explained by Haggerty *et al*<sup>[8]</sup> defining three types (concepts) of "continuity".

First is continuity of use of information on past events to make current care appropriate *e.g.*, a practitioner should be fully aware of previous treatments, any drug reactions, non-response and surgery before prescribing new treatments. Without this information incorrect or ineffective treatments may be prescribed to the patients.

Second is adopting a consistent and coherent approach to patient's changing needs *e.g.*, childhood to adulthood. Adolescence brings a significant change in the life of an individual which comes with its own challenges, further amplified in patients with any chronic illness such as IBD. Patient with chronic illness may be affected by delayed biological and sexual maturation<sup>[9]</sup>.

Third is an ongoing therapeutic relationship between patient and providers, which gastroenterologists and practitioners view as regular clinical appointments by the similar teams in a transitional clinic. Both paediatric and adult practitioners should be present in such a clinic. A handover clinic where a patient may only be seen once by paediatric and adult teams before moving on to adult services shouldn't really be labelled as "transitional clinic".

## VARIATION IN TRANSITION GUIDELINES IN DIFFERENT COUNTRIES

Guidelines regarding the protocol for transitional care vary between regions. These variations perhaps not only reflect our own differing views about transition and adolescent growth but are also dictated by available healthcare systems. Despite this observed variation, there tends to be a general consensus regarding major aspects of transitional care.

### ***North American Society for Pediatric Gastroenterology, Hepatology and Nutrition guidance***

Guidelines for the United States and Canada are outlined by the North American Society for Pediatric Gastroenterology, Hepatology and Nutrition (NASPGHAN). In its recommendations the NASPGHAN acknowledges the difference in the health care services of the two countries (United States and Canada) and adopts its approach accordingly. NASPGHAN places emphasis on promoting independence for the adolescent patient, they recommend that the Paediatric Gastroenterologist should begin to see their adolescent patients without their parents to resemble the relationship they will have with adult physicians. A discussion regarding the subject of transition of care to adult gastroenterologist and its benefits is also recommended to take place with both the patient and their family. The importance of a skilled adult physician with experience in caring for young adults is also highlighted by the NASPGHAN. Moreover, the importance of sharing medical records is stressed to reassure the family that both the paediatric and adult services are working together to deliver high quality care for the patient. With regards to the timing of the transition, the NASPGHAN provides separate recommendations for the United States and Canada. Since patients over the age of 18 years cannot be admitted to paediatric care in Canada, the transitional process needs to occur earlier in adolescence and must be completed by the age of 18. Meanwhile in the United States, many young adults are under the medical insurance of their parents and insures require that hospital admission occur at the location where the insurance holder resides. This raises different challenges in the transitional process as many young adults will be at college during this period which may be preferable by many as they may be more independent at an older age. We need comparative studies to see which system works better for our patients. Despite this, a lot of the care occurs over the telephone though, which may pose its own difficulties for the gastroenterologist and patient<sup>[10]</sup>.

As adults we would often take our spouses or on occasions even our parents or family members for our appointments. We, in Southampton (United Kingdom) therefore don't believe in a solitary patient attendance at a clinic in the absence of their parents. We believe

this should be patient choice and not made obligatory in guidelines. At the same time we also encourage patients to show responsibility in communication and not look at their parents for each piece of information.

### ***European Society for Paediatric Gastroenterology Hepatology and Nutrition guidance***

European guidelines have been set by both the European Society for Paediatric Gastroenterology Hepatology and Nutrition (ESPGHAN) and the European Crohn's and Colitis Organisation (ECCO). Compared to NASPGHAN guidance, ESPGHAN appears to place more emphasis on recognising the psychosocial factors involved in the care of adolescent patients. Their guidelines state that the "time of transition should be individually adapted according to psychosocial readiness" and emphasize for this to occur between the ages of 16 and 18 years old. Furthermore, joint clinics where the adolescent is seen with both paediatric and adult gastroenterologist are encouraged by the ESPGHAN<sup>[11]</sup>.

### ***NICE guidance in the United Kingdom***

In the United Kingdom, NICE has issued guidance on transition from children's to adult's services for young people in 2016<sup>[12]</sup>. This document defines the importance and principles of transition care laying emphasis in the period before, during and after transition. The guide discusses adoption of person centred approaches which are developmentally appropriate for each individual giving adolescents options to have a choice about their transition care. NICE introduces the concept of a "named worker" depending on each individual young person's needs. A named worker could be anyone ranging from a nurse, youth, education practitioner, health professional, GP, Specialist nurse, transition worker or an adviser. The NICE guidance also defines the role of this person which is essentially not only to support the teenager and family but also to help pursue appropriate care.

At Southampton Children's Hospital, we annually run 12 transition clinics; 6 are IBD transition and the other 6 hepatology transition clinics. The clinics are attended and supported by the paediatric and adult teams which comprise of consultant, specialist nurses, dieticians and psychology support. The care plans are agreed in advance to ensure smooth transition with the specialist nurses working as a key worker for patients and families. Due to our strong network links, we also successfully transition patients to other local GI services carried out in transition clinics in individual hospitals in the Wessex Network (12 hospitals with 8 regional clinics).

## CHALLENGES FACED BY PROVIDERS - FROM BIOSIMILARS TO IBS

Innumerable challenges are faced by Transitional Care

providers. It is not possible to go through each individual scenario and therefore will mention 3 common issues faced in our current transitional practices.

### **Use of biosimilars**

Improvements in diagnosis and development of new treatments has provided the modern day clinician with many treatment options. These options can help to tailor and optimise care to each individual patient. Monoclonal antibodies have revolutionised treatment of inflammatory bowel disease. Various monoclonal antibodies aim to target cytokines in the inflammatory cascade, suppressing these target molecules and help treat disease. A number of agents are now available on the market, which can be administered *via* various routes ranging from infusions in hospitals, to the use of subcutaneous injector pens in the community or home. In Southampton we discuss all available options with our patients, giving them the choice of treatments. Patients with their families proactively decide about their treatments. Although no data is available to prove this approach, we feel this not only empowers patients to take active control but also helps in better compliance.

A more recent development, evolutionary rather than revolutionary, is the use of Biosimilars for treatment of inflammatory bowel disease. NHS England describes Biosimilar as a biological medicine which is highly similar to another biological medicine already licensed to use<sup>[13]</sup>. Biosimilars are cheaper and a Royal College of Physician audit shows that if Biosimilars are used in all recruited patients the NHS United Kingdom would make a significant annual cost saving<sup>[14]</sup>. This is a huge cost saving which could potentially be invested in other services. In Southampton, our adult GI services developed a business case modelled on 150 IBD patients treated with a mean of 400 mg remicade every eight weeks for one year with a range of savings in drug acquisition costs. A potential saving of up to £812000 per annum with a 50% discount in drug costs if all patients agreed to change to Biosimilar infliximab was identified and this was invested into other parts of the GI service improving overall care<sup>[15]</sup>.

Switching from one monoclonal antibody to a biosimilar is a very hot topic, a quite common issue faced in transition care and there remains a considerable variation on adoption of this practice. The British Society of Gastroenterology was the first to advocate such practice<sup>[16]</sup> however more cautious approaches have been adopted by other societies. Several to date studies on clinical efficacy, safety and immunogenicity of biosimilars do not show any issues<sup>[17-19]</sup>. To date very limited paediatric data is available<sup>[20]</sup> on use of biosimilars. As antibodies may develop within 2-3 treatments, ECCO advise against a switch due to non-medical reasons particularly within the first 6 mo of starting treatment<sup>[21]</sup>.

Another option is to avoid switching and this is possible by commencing treatments after discussion and a joint agreement is reached between the paediatric and adult teams. We prefer this approach in Southampton and often make these decisions in our regular 2 weekly joint adult and paediatric IBD meetings. Letters detailing treatment plans are then sent to local hospitals and patients who feel confident and assured by the conjoined management.

### **IBS in IBD**

Irritable bowel syndrome is present in 14% of high school and 6% of middle school students<sup>[22]</sup>. Little is known about IBS in teenagers with IBD though and studies are needed to understand this. We often face this issue in our practices and perhaps we can help bridge these gaps by sharing evidence from each other's practices. For *e.g.*, while adult colleagues are more knowledgeable in management of IBS in IBD, paediatric gastroenterologists are very experienced in use nutrition as sole treatment or supplement in Crohn's disease (CD).

Abdalla *et al*<sup>[23]</sup> in a large 6309 participant study showed 20% of IBD patients may have concurrent IBS making it 1 in every 5 patients. IBS-IBD patients are more likely to be women, less likely to have graduated college and a comparatively lower QOL. Also these patients account for a relatively higher number of clinic visits when compared to non IBS-IBD patients. Despite no studies, in Southampton transition clinics we often recognise these issues in adolescents and teenagers.

It is not always easy to differentiate IBS symptoms from active IBD disease and patients may therefore often undergo repeat endoscopies. Use of tests such as faecal calprotectin may have a useful role particularly when normal calprotectin has been previously documented in an IBD patient.

### **Liver disease in IBD**

At first presentation of paediatric IBD, liver enzymes are abnormal in 6.9% of all patients, more commonly in patients with UC than CD. Spontaneous normalisation of liver function tests occurs in about 40% patients within the first 3 mo<sup>[24]</sup>. Developing PSC is worrying but is fortunately less common in paediatrics with an incidence rate of 0.23/100000 compared to 1.11/100000 in adults<sup>[25]</sup>.

Children with liver and IBD may be seen in both IBD and Hepatology transitional clinics making an already complex management even more difficult. Without good communication this may cause confusion. In Southampton we successfully adopted a model where the paediatric gastroenterologist responsible for patient's care leads and oversees management in each individual transition clinic. These patients will eventually be followed up more in the clinic where there is more disease burden but keeping the other specialists

informed about any change of treatments at all times.

## DISCUSSION

### *Where do we stand with regards to transitional services today?*

Although we have started to understand the need of Transition care but we certainly are still not doing well and there is still a long way to go. The Royal College of Physicians conducted a National IBD audit showing only 53% of healthcare providers provide a transitional care service for young people with only 46% provide regular transitional care in hospitals in United Kingdom. On a positive note this is an improvement from previous years<sup>[26]</sup>. With available services the Royal College of Physicians recommends Transition care providers to having a clear written policy and protocol for transition care. The audit findings are again quite pessimistic, revealing only 36% of services having a specific transition policy.

This issue is not exclusive to the United Kingdom, a national survey of Paediatric care providers in the United States also highlighted room for improvement in providing transitional services. Although slightly better than the United Kingdom, 68.1% of providers reported providing support for transition. Again, only half of participants reported being familiar with the transitional guidelines<sup>[27]</sup>.

There is no disagreement that gastroenterologists should be knowledgeable about transitional care. In a survey of 383 adult gastroenterologists, 96% held the belief that it was important for an adult physician to have knowledge of the medical aspects of adolescent health care however only 73% felt that they had adequate knowledge. Again worryingly only 46% of adult physicians felt they were competent to deal with adolescent developmental and mental health issues<sup>[6]</sup>.

One of the criteria used for successful transitioning is acquisition of "medical knowledge" and independence of adolescent patients with regards to their treatments. As high as 69% of surveyed adult gastroenterologists surveyed expected patients having knowledge of their medications as an expectation in delivering transitional care<sup>[6]</sup>. This expectation is perhaps unrealistic particularly when adult IBD patients don't retain such knowledge about their treatments. A study on adults with regards to knowing information about their IBD medications found that although 97% of patients could recall the names of their medication; this figure dropped significantly with regards to recalling their dose (63%) and even lower regarding knowledge of the side effects of their medication<sup>[28]</sup>.

Transition care providers report that unsuccessful transition care resulted where they were unable to communicate effectively with their patients<sup>[29]</sup>. As also mentioned at the start of this article, this remains a key hurdle in providing even the best of services to our patients. More focus is needed to train the practitioners

in better communication with patients and families. Despite being a people contact profession, we as doctors are never trained in communication skills during our medical training years. We are expected to automatically learn on the fly. This method certainly works well for some but not for all of us. We feel communication should be an essential part of the curriculum especially for students aiming to pursue branches of medicine where there is first contact with patients.

## CONCLUSION

We continue to face a number of challenges with regards to delivering transitional care. These range from no services to poor delivery and on occasions not helped by unrealistic expectations of the practitioners. Lack of insight and knowledge of transition care providers is a significant issue. Adolescent medicine is fast becoming a speciality of its own and these issues could be addressed by better training opportunities for the transition care providers. Health Units successfully running transition processes could share their experiences positively in possible unit to unit peer review visits, a process which was once run by the Royal College of Physicians. It is also about the time we recognise the role of patients who can help in development of our services. In the absence of a joint concerted effort, of us all working together we continue to fight a losing battle risking compromised care with poor continuity and confidence for our young IBD adolescent patients. At national level Paediatric gastroenterologists join and contribute to Transition care forums and activities in the British Society of Gastroenterology. Perhaps it is time now for us to invite adult gastroenterology colleagues to paediatric gastroenterology meetings. This will not only improve communication but also help to increase our understanding of common issues faced in Transition care. We will have a better chance to iron these issues managing these challenges together.

In Southampton we do not find a regular 3-4 monthly clinic to be adequate for delivering the needs of what we recognise as a "quality transition care". In addition to the clinic, the two teams meet in a two weekly joint paediatric and adult IBD meeting to discuss difficult and complex cases. Alongside this we recognise the important of gastroenterology teams meeting patients and families and now hold a regular open transition meeting in Southampton. This has turned out to be an excellent resource not only to enhance patient education but also giving patients a chance to meet members of the Adult and Paediatric IBD teams. These are a couple of examples which have helped improve delivery of transition care in Southampton and are by no way meant to be proscriptive for everyone to follow. One model doesn't

fit all and any transition service development planning should be determined and dictated by the local need and available healthcare facilities.

## REFERENCES

- 1 **Patton GC**, Viner R. Pubertal transitions in health. *Lancet* 2007; **369**: 1130-1139 [PMID: 17398312 DOI: 10.1016/s0140-6736(07)60366-3]
- 2 **Gray WN**, Holbrook E, Morgan PJ, Saeed SA, Denson LA, Hommel KA. Transition readiness skills acquisition in adolescents and young adults with inflammatory bowel disease: findings from integrating assessment into clinical practice. *Inflamm Bowel Dis* 2015; **21**: 1125-1131 [PMID: 25803505 DOI: 10.1097/mib.0000000000000352]
- 3 **Royal College Of Paediatrics And Child Health**. Thine's Blog. Improving Young Adult Care. You and Us The voice of children, young people and families. RCPCH Website: RCPCH, 2016
- 4 **Wright EK**, Williams J, Andrews JM, Day AS, Geary RB, Bampton P, Moore D, Lemberg D, Ravikumaran R, Wilson J, Lewindon P, Radford-Smith G, Rosenbaum J, Catto-Smith A, Desmond PV, Connell WR, Cameron D, Alex G, Bell SJ, De Cruz P. Perspectives of paediatric and adult gastroenterologists on transfer and transition care of adolescents with inflammatory bowel disease. *Intern Med J* 2014; **44**: 490-496 [PMID: 24589174 DOI: 10.1111/imj.12402]
- 5 **Sebastian S**, Jenkins H, McCartney S, Ahmad T, Arnott I, Croft N, Russell R, Lindsay JO. The requirements and barriers to successful transition of adolescents with inflammatory bowel disease: differing perceptions from a survey of adult and paediatric gastroenterologists. *J Crohns Colitis* 2012; **6**: 830-844 [PMID: 22398082 DOI: 10.1016/j.crohns.2012.01.010]
- 6 **Hait EJ**, Barendse RM, Arnold JH, Valim C, Sands BE, Korzenik JR, Fishman LN. Transition of adolescents with inflammatory bowel disease from pediatric to adult care: a survey of adult gastroenterologists. *J Pediatr Gastroenterol Nutr* 2009; **48**: 61-65 [PMID: 19172125 DOI: 10.1097/MPG.0b013e31816d71d8]
- 7 **Blum RW**, Garell D, Hodgman CH, Jorissen TW, Okinow NA, Orr DP, Slap GB. Transition from child-centered to adult health-care systems for adolescents with chronic conditions. A position paper of the Society for Adolescent Medicine. *J Adolesc Health* 1993; **14**: 570-576 [PMID: 8312295 DOI: 10.1016/1054-139X(93)90143-D]
- 8 **Haggerty JL**, Reid RJ, Freeman GK, Starfield BH, Adair CE, McKendry R. Continuity of care: a multidisciplinary review. *BMJ* 2003; **327**: 1219-1221 [PMID: 14630762 DOI: 10.1136/bmj.327.7425.1219]
- 9 **McDonagh JE**. Growing up and moving on: transition from pediatric to adult care. *Pediatr Transplant* 2005; **9**: 364-372 [PMID: 15910395 DOI: 10.1111/j.1399-3046.2004.00287.x]
- 10 **Bonkowski L**, Dryden WF. The effects of putative neurotransmitters on the resting membrane potential of dissociated brain neurones in culture. *Brain Res* 1976; **107**: 69-84 [PMID: 00005176]
- 11 **Turner D**, Levine A, Escher JC, Griffiths AM, Russell RK, Dignass A, Dias JA, Bronsky J, Braegger CP, Cucchiara S, de Ridder L, Fagerberg UL, Hussey S, Hugot JP, Kolacek S, Kolho KL, Lionetti P, Paerregaard A, Potapov A, Rintala R, Serban DE, Staiano A, Sweeny B, Veerman G, Veres G, Wilson DC, Ruemmele FM. Management of pediatric ulcerative colitis: joint ECCO and ESPGHAN evidence-based consensus guidelines. *J Pediatr Gastroenterol Nutr* 2012; **55**: 340-361 [PMID: 22773060 DOI: 10.1097/MPG.0b013e3182662233]
- 12 **National Institute for Health and Care Excellence**. Transition from children's to adults' services for young people using health or social care services. UK, 2016: 32
- 13 What is a Biosimilar Medicine? NHS England, 2015
- 14 UK IBD Audit highlights potential huge cost savings of using new biosimilar medicines. Royal College of Physicians, 2016
- 15 **Razanskaite V**, Cummings F. Biosimilar Remicade - the cost-saving benefit. Hospital Pharmacy Europe 2016
- 16 **BSG Guidance**. BSG Guidance on the Use of Biosimilar Infliximab CT-P13 in Inflammatory Bowel Disease. 2016. Available from: URL: [http://www.bsg.org.uk/images/stories/docs/clinical/guidance/bsg\\_infliximab\\_guidance\\_16.pdf](http://www.bsg.org.uk/images/stories/docs/clinical/guidance/bsg_infliximab_guidance_16.pdf)
- 17 **Fiorino G**, Manetti N, Armuzzi A, Orlando A, Variola A, Bonovas S, Bossa F, Maconi G, D'Inca R, Lionetti P, Cantoro L, Fries W, Annunziata ML, Costa F, Terpin MM, Biancone L, Cortelezzi CC, Amato A, Ardizzone S, Danese S, Guidi L, Rizzuto G, Massella A, Andriulli A, Massari A, Lorenzon G, Ghione S, Kohn A, Ventra A, Annese V. The PROSIT-BIO Cohort: A Prospective Observational Study of Patients with Inflammatory Bowel Disease Treated with Infliximab Biosimilar. *Inflamm Bowel Dis* 2017; **23**: 233-243 [PMID: 28092307 DOI: 10.1097/mib.0000000000000995]
- 18 **Gecse KB**, Lovász BD, Farkas K, Banai J, Bene L, Gasztonyi B, Golovics PA, Kristóf T, Lakatos L, Csontos AA, Juhász M, Nagy F, Palatka K, Papp M, Patai Á, Lakner L, Salamon Á, Szamosi T, Szepes Z, Tóth GT, Vincze A, Szalay B, Molnár T, Lakatos PL. Efficacy and Safety of the Biosimilar Infliximab CT-P13 Treatment in Inflammatory Bowel Diseases: A Prospective, Multicentre, Nationwide Cohort. *J Crohns Colitis* 2016; **10**: 133-140 [PMID: 26661272 DOI: 10.1093/ecco-jcc/jjv220]
- 19 **Park SH**, Kim YH, Lee JH, Kwon HJ, Lee SH, Park DI, Kim HK, Cheon JH, Im JP, Kim YS, Lee SY, Lee SJ. Post-marketing study of biosimilar infliximab (CT-P13) to evaluate its safety and efficacy in Korea. *Expert Rev Gastroenterol Hepatol* 2015; **9** Suppl 1: 35-44 [PMID: 26395533 DOI: 10.1586/17474124.2015.1091309]
- 20 **Sieczkowska J**, Jarzębicka D, Banaszkiewicz A, Plocek A, Gawronska A, Toporowska-Kowalska E, Oracz G, Meglicka M, Kierkus J. Switching Between Infliximab Originator and Biosimilar in Paediatric Patients with Inflammatory Bowel Disease. Preliminary Observations. *J Crohns Colitis* 2016; **10**: 127-132 [PMID: 26721942 DOI: 10.1093/ecco-jcc/jjv233]
- 21 **Danese S**, Fiorino G, Raine T, Ferrante M, Kemp K, Kierkus J, Lakatos PL, Mantzaris G, van der Woude J, Panes J, Peyrin-Biroulet L. ECCO Position Statement on the Use of Biosimilars for Inflammatory Bowel Disease-An Update. *J Crohns Colitis* 2017; **11**: 26-34 [PMID: 27927718 DOI: 10.1093/ecco-jcc/jjw198]
- 22 **Hyams JS**, Burke G, Davis PM, Rzepiski B, Andrulonis PA. Abdominal pain and irritable bowel syndrome in adolescents: a community-based study. *J Pediatr* 1996; **129**: 220-226 [PMID: 8765619]
- 23 **Abdalla MI**, Sandler RS, Kappelman MD, Martin CF, Chen W, Anton K, Long MD. Prevalence and Impact of Inflammatory Bowel Disease-Irritable Bowel Syndrome on Patient-reported Outcomes in CCFA Partners. *Inflamm Bowel Dis* 2017; **23**: 325-331 [PMID: 28092305 DOI: 10.1097/mib.0000000000001017]
- 24 **Van Der Feen CAJ**, Batra A, Beattie RM, Wright M, Bansal S, Afzal NA. Study of Abnormal Liver Function tests at diagnosis of paediatric inflammatory bowel disease in a large cohort in Southern England. *J Crohn's Colitis* 2014; **8**: S406
- 25 **Kaplan GG**, Laupland KB, Butzner D, Urbanski SJ, Lee SS. The burden of large and small duct primary sclerosing cholangitis in adults and children: a population-based analysis. *Am J Gastroenterol* 2007; **102**: 1042-1049 [PMID: 17313496 DOI: 10.1111/j.1572-0241.2007.01103.x]
- 26 **Royal College of Physicians**. National Audit of inflammatory bowel disease provision. 2014: 11
- 27 **Delons S**, Kleinknecht D, Courouze AM. Letter: Hepatitis-B immunoglobulin in prevention of HBs antigenaemia in haemodialysis patients. *Lancet* 1976; **1**: 204-205 [PMID: 00054725 DOI: 10.1097/mib.0000000000000642]
- 28 **Fishman LN**, Mitchell PD, Lakin PR, Masciarelli L, Flier SN. Are Expectations Too High for Transitioning Adolescents With Inflammatory Bowel Disease? Examining Adult Medication

Knowledge and Self-Management Skills. *J Pediatr Gastroenterol Nutr* 2016; **63**: 494-499 [PMID: 27280748 DOI: 10.1097/mpg.0000000000001299]

- 29 **Paine CW**, Stollon NB, Lucas MS, Brumley LD, Poole ES, Peyton T, Grant AW, Jan S, Trachtenberg S, Zander M, Mamula

P, Bonafide CP, Schwartz LA. Barriers and facilitators to successful transition from pediatric to adult inflammatory bowel disease care from the perspectives of providers. *Inflamm Bowel Dis* 2014; **20**: 2083-2091 [PMID: 25137417 DOI: 10.1097/mib.0000000000000136]

**P- Reviewer:** Lakatos PL, Slomiany BL **S- Editor:** Qi Y  
**L- Editor:** A **E- Editor:** Wang CH





Published by **Baishideng Publishing Group Inc**  
7901 Stoneridge Drive, Suite 501, Pleasanton, CA 94588, USA  
Telephone: +1-925-223-8242  
Fax: +1-925-223-8243  
E-mail: [bpgoffice@wjgnet.com](mailto:bpgoffice@wjgnet.com)  
Help Desk: <http://www.f6publishing.com/helpdesk>  
<http://www.wjgnet.com>



ISSN 1007-9327

