

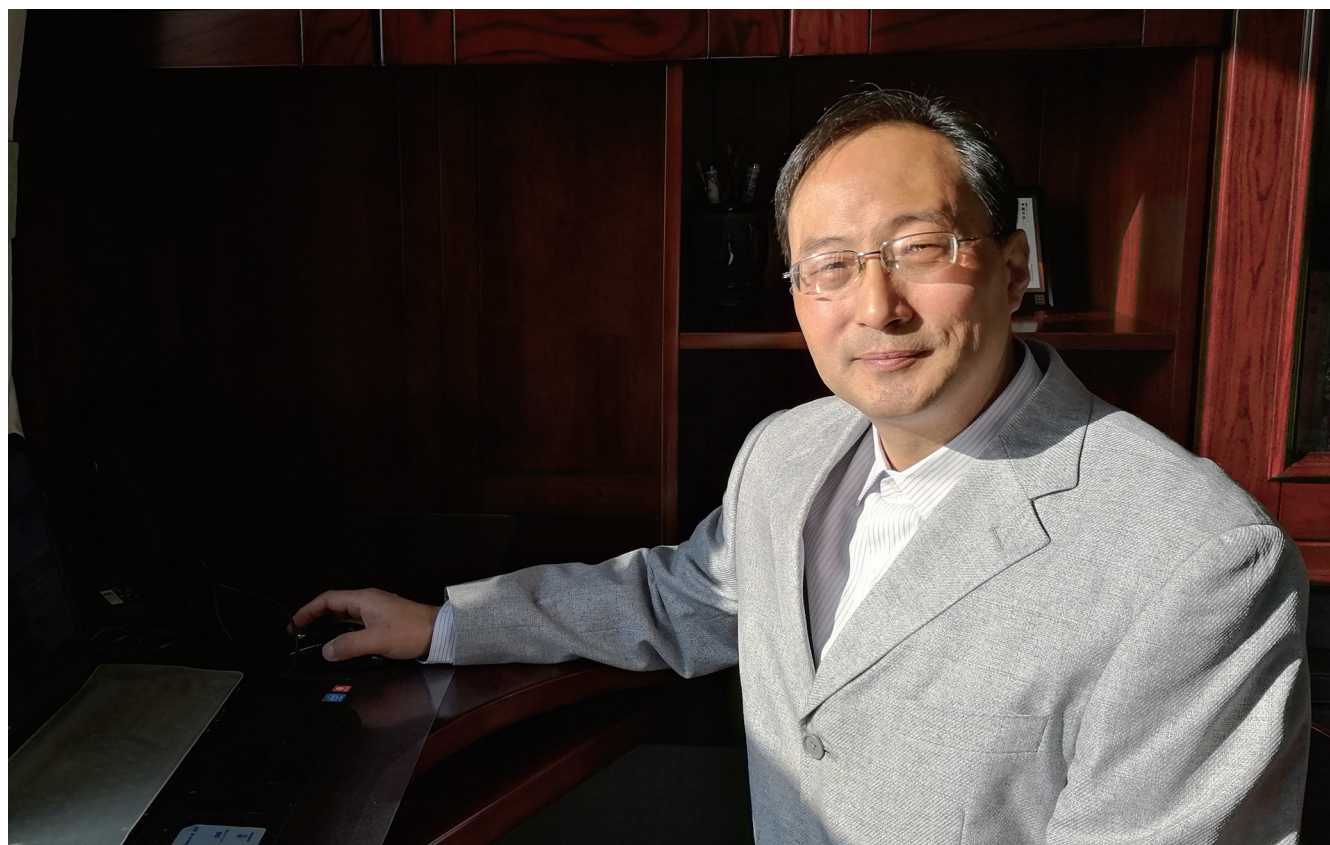
ISSN 1009-3079 (print)
ISSN 2219-2859 (online)

世界华人消化杂志®

WORLD CHINESE JOURNAL OF DIGESTOLOGY

Shijie Huaren Xiaohua Zazhi

2020 年 2 月 28 日 第 28 卷 第 4 期 (Volume 28 Number 4)



4/2020

ISSN 1009-3079



《世界华人消化杂志》是一本高质量的同行评议、开放获取和在线出版的学术刊物。本刊被国际检索系统《化学文摘(Chemical Abstracts, CA)》、《医学文摘库/医学文摘(EMBASE/Excerpta Medica, EM)》、《文摘杂志(Abstract Journal, AJ)》、Scopus、中国知网《中国期刊全文数据库(CNKI)》、《中文科技期刊数据库(CSTJ)》和《超星期刊域出版平台(Superstar Journals Database)》数据库收录。



基础研究

- 113 胡桃苕对非酒精性脂肪性肝小鼠中肝脂质代谢紊乱、肝损伤以及小肠完整性的改善作用
虞玲燕, 李卫英, 林佳

临床研究

- 122 MEG8、TGM2在胃癌组织中的表达及临床意义
安健健, 李思源, 管鑫, 徐晓娜, 姜相君
- 129 基于“脑-肠轴”理论探讨老年慢性便秘患者睡眠障碍与焦虑抑郁和生活质量相关性
徐敏

文献综述

- 135 粪便微生物群移植在部分消化疾病治疗中的应用及安全性问题
金铖铖, 胡莹, 金博
- 144 加速康复外科与手术相关差异的研究进展
崔宏力, 魏金平

临床实践

- 149 急性胰腺炎患者外周血CD14⁺CD16⁺单核细胞表达B7-H2的临床意义
龚菊, 黄坚, 徐若欣, 吴云, 满益伍, 陈炜, 唐兆芳, 乐萍

消 息

- 121 《世界华人消化杂志》参考文献要求
- 134 《世界华人消化杂志》性质、刊登内容及目标
- 154 《世界华人消化杂志》消化护理学领域征稿启事

封面故事

田锦林, 副主任医师, 中国人民解放军陆军第82集团军医院介入室, 擅长于外周血管病变及肿瘤的介入治疗,《臭氧消融术治疗椎间盘突出的基础和临床应用研究》曾获中国人民解放军总后勤部医疗成果二等奖,《介入治疗Graves病后甲状腺激素水平的变化及远期疗效研究》、《隐源性咯血的临床特点及介入治疗》曾获保定市科技进步一等、二等奖。

本期责任人

编务 王栋梅; 送审编辑 王禹乔; 组版编辑 刘继红; 英文编辑 王天奇;
形式规范审核编辑部主任 吴云晓健; 最终清样审核总编辑 马连生

世界华人消化杂志

Shijie Huaren Xiaohua Zazhi

吴阶平 题写封面刊名

陈可冀 题写版权刊名

(半月刊)

创 刊 1993-01-15

改 刊 1998-01-25

出 版 2020-02-28

原刊名 新消化病学杂志

期刊名称

世界华人消化杂志

国际标准连续出版物号

ISSN 1009-3079 (print) ISSN 2219-2859 (online)

主编

党双锁, 教授, 710004, 陕西省西安市, 西安交通大学医学院第二附属医院感染科

江学良, 教授, 250031, 山东省济南市, 中国人民解放军济南军区总医院消化科

刘占举, 教授, 200072, 上海市, 同济大学附属第十人民医院消化内科

吕宾, 教授, 310006, 浙江省杭州市, 浙江中医药大学附属医院(浙江省中医院)消化科

马大烈, 教授, 200433, 上海市, 中国人民解放军第二军医大学附属长海医院病理科

王俊平, 教授, 030001, 山西省太原市, 山西省人民医院消化科

王小众, 教授, 350001, 福建省福州市, 福建医科大学附属协和医院消化内科

姚登福, 教授, 226001, 江苏省南通市, 南通大学附属医院临床医学研究中心

张宗明, 教授, 100073, 北京市, 首都医科大学北京电力医院普外科

编辑委员会

编辑委员会成员在线名单, 详见:

<https://www.wjgnet.com/1009-3079/editorialboard.htm>

编辑部

马亚娟, 主任

《世界华人消化杂志》编辑部

Baishideng Publishing Group Inc

7901 Stoneridge Drive, Suite 501, Pleasanton,

CA 94588, USA

Telephone: +1-925-3991568

E-mail: wcjd@wjgnet.com

<http://www.wjgnet.com>

出版

百世登出版集团有限公司

Baishideng Publishing Group Inc

7901 Stoneridge Drive, Suite 501, Pleasanton,

CA 94588, USA

Telephone: +1-925-3991568

E-mail: bpgoffice@wjgnet.com

<https://www.wjgnet.com>

制作

北京百世登生物医学科技有限公司
100025, 北京市朝阳区东四环中路
62号, 远洋国际中心D座903室
电话: +86-10-85381892

《世界华人消化杂志》是一本高质量的同行评议, 开放获取和在线出版的学术刊物。本刊被国际检索系统《化学文摘(Chemical Abstracts, CA)》、《医学文摘库/医学文摘(EMBASE/Excerpta Medica, EM)》、《文摘杂志(Abstract Journal, AJ)》、Scopus、中国知网《中国期刊全文数据库(CNKI)》、《中文科技期刊数据库(CSTJ)》和《超星期刊出版平台(Superstar Journals Database)》数据库收录。

《世界华人消化杂志》正式开通了在线办公系统(<https://www.baishideng.com>), 所有办公流程一律可以在线进行, 包括投稿、审稿、编辑、审读, 以及作者、读者和编者之间的信息反馈交流。

特别声明

本刊刊出的所有文章不代表本刊编辑部和本刊编委会的观点, 除非特别声明。本刊如有印装质量问题, 请向本刊编辑部调换。

定价

每期136.00元 全年24期3264.00元

© 2020 Baishideng Publishing Group Inc. All rights reserved.



Contents

Volume 28 Number 4 February 28, 2020

BASIC RESEARCH

- 113 Juglanin improves lipid metabolism disorder, liver injury, and intestinal integrity in nonalcoholic fatty liver mice
Yu LY, Li WY, Lin J

CLINICAL RESEARCH

- 122 Clinical significance of expression of *MEG8* and *TGM2* genes in gastric cancer
An JJ, Li SY, Guan X, Xu XN, Jiang XJ
- 129 Analysis of correlation of sleep disturbance with anxiety, depression, and quality of life in elderly patients with chronic constipation based on "brain-gut axis" theory
Xu M

REVIEW

- 135 Faecal microbiota transplantation: Application in treatment of some digestive diseases and safety concerns
Jin CY, Hu Y, Jin B
- 144 Progress in research of enhanced recovery after surgery and surgery related differences
Cui HL, Wei JP

CLINICAL PRACTICE

- 149 Clinical significance of B7-H2 expression in peripheral blood CD14⁺CD16⁺ monocytes in patients with acute pancreatitis
Gong J, Huang J, Wu Y, Man YW, Xu R, Chen W, Tang ZF, Le P

Contents

World Chinese Journal of Digestology
Volume 28 Number 4 February 28, 2020

COVER

Editorial Board Member of *World Chinese Journal of Digestology*, Tian Jin-Lin, Associate Chief Physician, Department of Interventional, the 82nd Group Military Hospital of Chinese PLA, Baihua East Road 991, Baoding 071000, Hebei Province, China

Indexed/Abstracted by

Chemical Abstracts, EMBASE/Excerpta Medica, Abstract Journals, Scopus, CNKI, CSTJ and Superstar Journals Database.

RESPONSIBLE EDITORS FOR THIS ISSUE

Assistant Editor: *Dong-Mei Wang*

Review Editor: *Yu-Qiao Wang*

Electronic Editor: *Ji-Hong Liu*

English Language Editor: *Tian-Qi Wang*

Proof Editor: *Yun-Xiaojuan Wu*

Layout Reviewer: *Lian-Sheng Ma*

Shijie Huaren Xiaohua Zazhi

Founded on January 15, 1993

Renamed on January 25, 1998

Publication date February 28, 2020

NAME OF JOURNAL

World Chinese Journal of Digestology

ISSN

ISSN 1009-3079 (print) ISSN 2219-2859 (online)

EDITOR-IN-CHIEF

Shuang-Suo Dang, Professor, Department of Infectious Diseases, the Second Affiliated Hospital of Medical School of Xi'an Jiaotong University, Xi'an 710004, Shaanxi Province, China

Xue-Liang Jiang, Professor, Department of Gastroenterology, General Hospital of Jinan Military Command of Chinese PLA, Jinan 250031, Shandong Province, China

Zhan-Ju Liu, Professor, Department of Gastroenterology, Shanghai Tenth People's Hospital, Tongji University, Shanghai 200072, China

Bin Lv, Professor, Department of Gastroenterology, the First Affiliated Hospital of Zhejiang Chinese Medical University, Hangzhou 310006, Zhejiang Province, China

Da-Lie Ma, Professor, Department of Pathology, Changhai Hospital, the Second Military Medical University of Chinese PLA, Shanghai 200433, China

Jun-Ping Wang, Professor, Department of Gastroenterology, People's Hospital of Shanxi,

Taiyuan 030001, Shanxi Province, China

Xiao-Zhong Wang, Professor, Department of Gastroenterology, Union Hospital, Fujian Medical University, Fuzhou 350001, Fujian Province, China

Deng-Fu Yao, Professor, Clinical Research Center, Affiliated Hospital of Nantong University, Nantong 226001, Jiangsu Province, China

Zong-Ming Zhang, Professor, Department of General Surgery, Beijing Electric Power Hospital, Capital Medical University, Beijing 100073, China

EDITORIAL BOARD MEMBERS

All editorial board members resources online at <https://www.wjgnet.com/1009-3079/editorialboard.htm>

EDITORIAL OFFICE

Ya-Juan Ma, Director

World Chinese Journal of Digestology

Baishideng Publishing Group Inc

7901 Stoneridge Drive, Suite 501, Pleasanton, CA 94588, USA

Telephone: +1-925-3991568

E-mail: wjcd@wjgnet.com

<https://www.wjgnet.com>

PUBLISHER

Baishideng Publishing Group Inc

7901 Stoneridge Drive, Suite 501, Pleasanton, CA 94588, USA

Telephone: +1-925-3991568

E-mail: bpgoffice@wjgnet.com

<https://www.wjgnet.com>

PRODUCTION CENTER

Beijing Baishideng BioMed Scientific Co., Limited Room 903, Building D, Ocean International Center, No. 62 Dongsihuan Zhonglu, Chaoyang District, Beijing 100025, China
Telephone: +86-10-85381892

PRINT SUBSCRIPTION

RMB 136 Yuan for each issue

RMB 3264 Yuan for one year

COPYRIGHT

© 2020 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, but not the views, opinions or policies of the BPG, except where otherwise explicitly indicated.

INSTRUCTIONS TO AUTHORS

Full instructions are available online at <https://www.wjgnet.com/1009-3079/Nav/36>. If you do not have web access, please contact the editorial office.

加速康复外科与手术相关差异的研究进展

崔宏力, 魏金平

崔宏力, 魏金平, 清华大学附属垂杨柳医院普外科 北京市 100022

崔宏力, 主任医师, 教授, 主要从事普外科胃肠道病的基础与临床研究.

基金项目: 北京市朝阳区科技计划项目, No. CYSF181102.

作者贡献分布: 魏金平负责撰写文章初稿; 崔宏力负责文章校正修改.

通讯作者: 魏金平, 主治医师, 100022, 北京市朝阳区垂杨柳南街2号, 清华大学附属垂杨柳医院普外科. 981525993@qq.com

收稿日期: 2019-12-05

修回日期: 2019-12-30

接受日期: 2020-02-06

在线出版日期: 2020-02-28

Progress in research of enhanced recovery after surgery and surgery related differences

Hong-Li Cui, Jin-Ping Wei

Hong-Li Cui, Jin-Ping Wei, Department of General Surgery, Chuiyangliu Hospital Affiliated to Tsinghua University, Beijing 100022, China

Supported by: Beijing Chaoyang District Science and Technology Plan Project, No. CYSF181102.

Corresponding author: Jin-Ping Wei, Attending Physician, Department of General Surgery, Chuiyangliu Hospital Affiliated to Tsinghua University, Chuiyangliu South Street 2, Chaoyang District, Beijing 100022, China. 981525993@qq.com

Received: 2019-12-05

Revised: 2019-12-30

Accepted: 2020-02-06

Published online: 2020-02-28

Abstract

Enhanced recovery after surgery (ERAS) refers to the use of standardized, multimodal perioperative strategies to reduce physiological stress and organ dysfunction

caused by surgery. Since the ERAS concept was put forward, it has been widely respected in the surgical field. Its benefits in the surgical field for the vast majority of patients, medical staff and healthcare systems are obvious. However, for some specific people undergoing surgery, the benefits are not certain, which is the so-called surgery-related differences. This article analyzes recent studies of different surgical fields related to surgical-related differences in different ethnic groups, reviews a large number of positive effects of the implementation of ERAS on surgery-related differences, and elaborates its possible mechanism. It is finally concluded that ERAS, a standardized model for resolving surgery-related differences, should become the gold standard for surgical perioperative management.

© The Author(s) 2020. Published by Baishideng Publishing Group Inc. All rights reserved.

Key Words: Enhanced recovery after surgery; Surgery related differences; Early recovery

Cui HL, Wei JP. Progress in research of enhanced recovery after surgery and surgery related differences. *Shijie Huaren Xiaohua Zazhi* 2020; 28(4): 144-148

URL: <https://www.wjgnet.com/1009-3079/full/v28/i4/144.htm>

DOI: <https://dx.doi.org/10.11569/wcjd.v28.i4.144>

摘要

加速康复外科(enhanced recovery after surgery, ERAS)是指使用标准化、多模式的围手术期策略来减少手术引起的生理应激和器官功能障碍. 自ERAS理念提出以来, 其在外科领域广受推崇. 它在外科领域对于绝大部分患者, 医务人员和医疗保健系统的益处是显而易见的. 然而, 对于某些特定的接受手术的人群来说, 其益处则并不确定, 这就是所谓的手术相关差异. 本文将近年来不同外科领域有关不同种族人群出现手术相关差异的研究进行分析, 综述了大量有

关ERAS的实施对手术相关差异的正面影响,并阐述了其可能的发生机制.最终得出结论,ERAS一种解决手术相关差异的标准化模式,应该成为外科围手术期管理的金标准.

© The Author(s) 2020. Published by Baishideng Publishing Group Inc. All rights reserved.

关键词: 加速康复外科; 手术相关差异; 早期康复

核心提要: 对于某些特定的接受手术的人群,手术相关差异确实存在,而加速康复外科通过运用标准化的围手术期管理及多学科协作理念,为所有患者提供科学合理的外科治疗,使我们能更好的认识、理解并减少这些手术相关差异.

崔宏力, 魏金平. 加速康复外科与手术相关差异的研究进展. 世界华人消化杂志 2020; 28(4): 144-148

URL: <https://www.wjgnet.com/1009-3079/full/v28/i4/144.htm>

DOI: <https://dx.doi.org/10.11569/wjcd.v28.i4.144>

0 引言

加速康复外科(enhanced recovery after surgery, ERAS)是由丹麦外科医师Kehlet于2001年率先提出,它通过整个围手术期间系统地提供15-20个特定护理流程来实现术后早期康复.这些特定的流程包括患者宣教、多模式镇痛、优化补液、早期营养支持及早期活动等^[1,2].在过去的20年,ERAS一直被认为可以缩短术后住院时间,减少术后并发症,且不会增加再入院率或死亡率^[3-5].然而,对于某些特定的接受手术的人群来说,其益处则并不确定.

1 手术相关差异所涵盖的范围

全球高达30%的疾病需要外科手术干预,随着各式各样的外科手术增加,术后相关的并发症及死亡发生风险也随之增加^[6,7].而有趣的是,在美国的手术患者中,非洲裔美国人等少数民族,与其他种族相比,术后效果更差^[3].并且这种现象基本存在于所有的外科学科中,包括结直肠外科^[8],心脏外科^[9],肿瘤外科^[10,11],泌尿外科^[12],创伤外科^[13]以及骨科^[14].尽管手术相关差异所造成的社会负担尚未确切统计,但美国国家卫生统计中心估计,如果消除医疗保健相关差异,可以避免每年至少83000例患者的死亡^[15],而手术差异所导致的死亡患者无疑占有其中大部分.甚至有学者认为,如果不努力消除手术相关差异,健康差异的消除将是纸上谈兵.

结直肠外科是ERAS最早开展的外科领域之一,同时也存在较为明显的手术相关差异.在结直肠手术中,

黑人患者相比于其他种族人群患者而言手术愈后更差,这其中包括更长的平均住院时间,更高的再入院率和更高的死亡率^[8,16-18].在一项包含122631名结直肠癌患者的大型临床研究中,黑人患者比白人患者具有更高的住院死亡率及更长的平均住院时间^[19].在另一项包含82474名结直肠手术患者的临床研究显示,与病情类似的白人患者相比,黑人患者更容易接受开放手术而非微创手术,其死亡率和再入院率也更高^[20].即使是在炎症性肠病等疾病中也存在同样的趋势,黑人患者相比白人患者再入院率更高(20% vs 15%),平均住院时间更长(8 d vs 6 d)^[18].令人惊讶的是,即使未出现术后并发症,黑人患者在结直肠手术后的平均住院时间仍然更长^[21].

除了结直肠外科,其他外科同样存在种族差异, Lucas等^[22]发现,在很多手术中,黑人患者比白人患者死亡风险高出8%-57%.这些手术包括根治性膀胱切除术,胰腺切除术,腹主动脉瘤修补术,冠状动脉搭桥手术,主动脉瓣膜置换术以及食管切除术等(图1).在对4725例肝癌患者进行的另一项研究中,研究人员发现黑人患者在肝移植后死亡率更高^[23].在肾移植中,黑人患者的移植物存活率更低^[24].同样,黑人患者心脏移植术后早期死亡的风险也更高^[25].而黑人患儿在心脏移植术后移植物的存活率比其他种族患儿移植物存活率低50%^[26].这些研究绝大多数表明手术相关差异的确存在.

手术相关差异的范畴很大,研究它需要先构建一个系统的框架.研究表明,健康差异的影响因素很多,与患者本人,医护人员和医疗保健系统关系密切^[22,27,28]. Torain等^[27]认为手术相关差异的研究应该主要集中在以下五个方面,包括患者因素,术者因素,医疗保障系统因素,临床护理质量因素,术后护理及康复因素.为了消除手术相关差异,需要做的事情很多,包括加强以患者为中心的医患沟通方式,促进医疗保障系统进一步发展,提高护理质量及术后康复支持,并能及时评估急诊干预措施的效果.在理想状态下,消除手术相关差异需要医护人员、患者及医疗保健系统相互协作.在此框架下,ERAS必须要满足以上所有要求.

2 ERAS: 一种解决手术相关差异的标准化模式

ERAS途径是通过标准化围手术期的治疗及护理流程来实现的.这种模式功能强大、有效且全面.例如,大手术后患者渴望减少甚至避免恶心、呕吐症状^[29], ERAS通过术前和术中药物应用、术后早期下地活动、早期进食及避免留置胃管等措施,减少了患者术后恶心、呕吐症状的发生. ERAS强调术前的医患沟通,让患者对手术

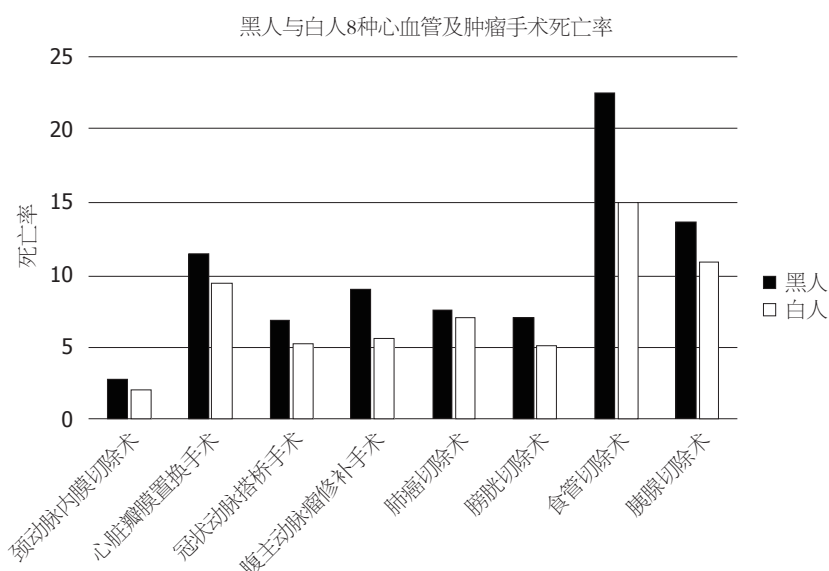


图 1 黑人与白人8种心血管及肿瘤手术死亡率。

及愈后有初步的认知^[29]。而这些措施与Torain等^[27]所描述的干预措施有许多相同的地方, 包括医患的沟通, 共同参与及术后支持。

最近的一些研究已经着手于探究ERAS在减少弱势群体术后差异。而这些研究的研究对象大多数集中于同一种族患者, 或者研究对象是不同种族的患者, 但是最后研究结果却显示ERAS未能减少不同种族患者术后相关差异。而真正意义上的第一项表明ERAS能减少不同种族患者相关差异的研究主要体现在ERAS能减少不同种族患者术后平均住院时间差异^[30]。这项研究显示, 在ERAS实施之前, 黑人患者和白人患者的术后平均住院时间存在显著差异(10.1 d vs 7.1 d); 而在ERAS实施之后, 在不增加术后并发症及死亡率的情况下, 黑人患者和白人患者的术后平均住院时间无明显统计学差异(5.4 d vs 5.8 d)。Wahl等^[30]发现, 在标准化围手术期措施实施后, 种族差异并不会成为影响术后平均住院时间的因素。而这同时也印证了ERAS在减少术后相关差异的巨大潜力。

最近还有一些关于不同种族患者对于ERAS依从性的研究也在进行。Wahl等^[30]的同一项研究中发现, 与白人患者相比, 黑人患者明显更难遵从术前禁食的医嘱(32% vs 47%)。在另一项研究中, Leeds等^[31]发现, ERAS实施前后白人患者和非白人患者术后并发症的发生率并无显著差异, 而两组患者术后平均住院时间却都有减少。在ERAS实施之前, 白人患者的术后平均住院时间为5.5 d, 非白人患者的术后平均住院时间为5.0 d; 在ERAS实施后, 两组患者的术后平均住院时间都是4.0 d。更为重要的是, 这个研究机构研究显示在实施ERAS之前, 不同种族患者术后平均住院时间及术后并发症的发生率

并无明显差异。而这也充分说明了ERAS对于所有患者的愈后都有益处。

ERAS对手术相关差异的影响是非常显著的。首先, ERAS是一种能真正意义上减少手术相关差异的标准化模式, 这在很多研究中都能得到印证; 其次, ERAS作为一种模式, 从中可以优化出其他的干预措施; 第三, ERAS的应用正不断扩展至其他专业领域, 它将对全世界弱势群体患者带来福音。

3 ERAS减少手术相关差异的可能机制

虽然ERAS减少手术相关差异的潜在机制尚不完全清楚, 但围手术期的决策及标准化护理流程可能是其中重要的机制。Lau等^[32]通过研究静脉血栓栓塞(venous thromboembolism, VTE)预防中的差异问题证实了这一观点。他们的研究显示, 在任何干预措施实施之前, 对于创伤后接受VTE预防治疗的黑人 and 白人患者, 他们所需要得到的护理时间占比存在明显差异, 分别为56.6%和70.1%。所得到的医疗服务占比也存在同样的差异, 分别为61.7%与69.5%。而在ERAS实施之后, 以上种族间的差异消失了。ERAS通过其有据可循的标准化流程, 帮助医生更好的进行临床管理。毫无疑问, 当同样的医疗手段和护理流程应用于所有患者时, 其愈后也是大致相同的。

术者本身的偏见可能是ERAS能发挥其作用的另一个原因。术者的偏见已被证实对于患者愈后发挥着重要作用。具体而言, 术者不经意的偏见会对医患间沟通、治疗决策及患者的依从性产生很大的负面影响^[33]。约翰霍普金斯医院通过采访本院的外科医生, 发现他们当中的大多数人或多或少的存在种族和社会偏见^[34]。而ERAS通过提供一整套标准化的管理途径, 可以消除外

科医生无意识或潜意识的偏见。

4 未来方向

外科医护人员应该认识到手术相关差异是一个可预防的问题。美国一项针对普通外科医生的全国性调查研究发现, 只有不到四分之一的外科医生试图在探究其手术患者出现术后差异原因^[35]。而在那些关注到手术差异的外科医生中, 大多数人认为这种差异是由于患者因素造成的, 包括患者的依从性和信仰(即指责患者)。尽管美国国立卫生研究院和美国外科医师学会大力倡导外科医生正确认识并研究手术相关差异原因, 但绝大多数外科医生仍不以为然^[36]。而随着ERAS逐渐被推广, 它已成为解决外科手术相关差异潜在的重要途径。

充分了解ERAS减少手术相关差异的机制将有助于我们寻找和制定更为有效的干预措施, 我们未来的工作应侧重于提高不同患者对于ERAS的依从性。有研究表明, 患者对于ERAS依从性与预后差异密切相关^[37]。Wahl等^[30]按种族不同进行分组研究, 结果表明其依从性存在较大区别, 白人患者依从性为86.4%, 黑人患者依从性为76.2%。其他研究显示, 具有较高社会经济地位的患者具有更好的依从性^[31]。这些差异的原因尚不完全明确。然而, 我们从慢性病患者服用药物依从性研究中吸取的经验表明, 健康素养(即个人获取、处理和理解健康信息的能力)可能是ERAS依从性存在差异的一个潜在原因^[38]。

5 总结

手术相关差异是确实存在的, 某些特定的手术人群至今仍在经历不合理的入院护理及治疗, 以至出现手术相关差异。而ERAS通过运用标准化的围手术期管理及多学科协作理念, 为所有患者提供科学合理的外科治疗, 使我们能更好的认识、理解并减少这些手术相关差异。ERAS提供了一个独特且实用的模型, 改善并减少了弱势手术人群术后差异。在人类实现健康平等的不懈努力过程中, ERAS的出现使其向前迈出了巨大的一步, 因此, ERAS应该成为外科围手术期管理的金标准。

6 参考文献

- Gustafsson UO, Scott MJ, Schwenk W, Demartines N, Roulin D, Francis N, McNaught CE, Macfie J, Liberman AS, Soop M, Hill A, Kennedy RH, Lobo DN, Fearon K, Ljungqvist O; Enhanced Recovery After Surgery (ERAS) Society, for Perioperative Care; European Society for Clinical Nutrition and Metabolism (ESPEN); International Association for Surgical Metabolism and Nutrition (IASMEN). Guidelines for perioperative care in elective colonic surgery: Enhanced Recovery After Surgery (ERAS®) Society recommendations. *World J Surg* 2013; 37: 259-284 [PMID: 23052794 DOI: 10.1007/s00268-012-1772-0]
- 朱颖, 安利杰, 侯婧悦. 快速康复外科研究进展. 世界华人消化杂志 2017; 25: 3038-3045 [DOI: 10.11569/wcjd.v25.i34.3038]

- Varadhan KK, Neal KR, Dejong CH, Fearon KC, Ljungqvist O, Lobo DN. The enhanced recovery after surgery (ERAS) pathway for patients undergoing major elective open colorectal surgery: a meta-analysis of randomized controlled trials. *Clin Nutr* 2010; 29: 434-440 [PMID: 20116145 DOI: 10.1016/j.clnu.2010.01.004]
- Lassen K, Soop M, Nygren J, Cox PB, Hendry PO, Spies C, von Meyenfeldt MF, Fearon KC, Revhaug A, Norderval S, Ljungqvist O, Lobo DN, Dejong CH; Enhanced Recovery After Surgery (ERAS) Group. Consensus review of optimal perioperative care in colorectal surgery: Enhanced Recovery After Surgery (ERAS) Group recommendations. *Arch Surg* 2009; 144: 961-969 [PMID: 19841366 DOI: 10.1001/archsurg.2009.170]
- 赵银泉, 佟伟华, 王权. 快速康复在结直肠手术中的应用. 世界华人消化杂志 2011; 19: 2048-2052 [DOI: 10.11569/wcjd.v19.i19.2048]
- Meara JG, Leather AJ, Hagander L, Alkire BC, Alonso N, Ameh EA, Bickler SW, Conteh L, Dare AJ, Davies J, Mésieris ED, El-Halabi S, Farmer PE, Gawande A, Gillies R, Greenberg SL, Grimes CE, Gruen RL, Ismail EA, Kamara TB, Lavy C, Lundeg G, Mkandawire NC, Raykar NP, Rieser JN, Rodas E, Rose J, Roy N, Shrimme MG, Sullivan R, Verguet S, Watters D, Weiser TG, Wilson IH, Yamey G, Yip W. Global Surgery 2030: evidence and solutions for achieving health, welfare, and economic development. *Int J Obstet Anesth* 2016; 25: 75-78 [PMID: 26597405 DOI: 10.1016/j.ijoa.2015.09.006]
- Healy MA, Mullard AJ, Campbell DA Jr, Dimick JB. Hospital and Payer Costs Associated With Surgical Complications. *JAMA Surg* 2016; 151: 823-830 [PMID: 27168356 DOI: 10.1001/jamasurg.2016.0773]
- Schneider EB, Haider A, Sheer AJ, Hambridge HL, Chang DC, Segal JB, Wu AW, Lidor AO. Differential association of race with treatment and outcomes in Medicare patients undergoing diverticulitis surgery. *Arch Surg* 2011; 146: 1272-1276 [PMID: 22106319 DOI: 10.1001/archsurg.2011.280]
- Cooper WA, Thourani VH, Guyton RA, Kilgo P, Lattouf OM, Chen EP, Morris CD, Vega JD, Vassiliades TA Jr, Puskas JD. Racial disparity persists after on-pump and off-pump coronary artery bypass grafting. *Circulation* 2009; 120: S59-S64 [PMID: 19752387 DOI: 10.1161/CIRCULATIONAHA.108.843763]
- Farjah F, Wood DE, Yanez ND 3rd, Vaughan TL, Symons RG, Krishnadasan B, Flum DR. Racial disparities among patients with lung cancer who were recommended operative therapy. *Arch Surg* 2009; 144: 14-18 [PMID: 19153319 DOI: 10.1001/archsurg.2008.519]
- Greenstein AJ, Little VR, Swanson SJ, Divino CM, Packer S, McGinn TG, Wisnivesky JP. Racial disparities in esophageal cancer treatment and outcomes. *Ann Surg Oncol* 2008; 15: 881-888 [PMID: 17987341 DOI: 10.1245/s10434-007-9664-5]
- Pollack CE, Bekelman JE, Epstein AJ, Liao K, Wong YN, Armstrong K. Racial disparities in changing to a high-volume urologist among men with localized prostate cancer. *Med Care* 2011; 49: 999-1006 [PMID: 22005606 DOI: 10.1097/MLR.0b013e3182364019]
- Hicks CW, Hashmi ZG, Velopoulos C, Efron DT, Schneider EB, Haut ER, Cornwell EE 3rd, Haider AH. Association between race and age in survival after trauma. *JAMA Surg* 2014; 149: 642-647 [PMID: 24871941 DOI: 10.1001/jamasurg.2014.166]
- Singh JA, Lu X, Rosenthal GE, Ibrahim S, Cram P. Racial disparities in knee and hip total joint arthroplasty: an 18-year analysis of national Medicare data. *Ann Rheum Dis* 2014; 73: 2107-2115 [PMID: 24047869 DOI: 10.1136/annrheumdis-2013-203494]
- Satcher D, Fryer GE Jr, McCann J, Troutman A, Woolf SH, Rust G. What if we were equal? A comparison of the black-white mortality gap in 1960 and 2000. *Health Aff (Millwood)* 2005; 24: 459-464 [PMID: 15757931 DOI: 10.1377/hlthaff.24.2.459]
- Schneider EB, Haider AH, Hyder O, Efron JE, Lidor AO, Pawlik TM. Assessing short- and long-term outcomes among black vs white Medicare patients undergoing resection of colorectal cancer.

- Am J Surg* 2013; 205: 402-408 [PMID: 23375764 DOI: 10.1016/j.amjsurg.2012.08.005]
- 17 Ravi P, Sood A, Schmid M, Abdollah F, Sammon JD, Sun M, Klett DE, Varda B, Peabody JO, Menon M, Kibel AS, Nguyen PL, Trinh QD. Racial/Ethnic Disparities in Perioperative Outcomes of Major Procedures: Results From the National Surgical Quality Improvement Program. *Ann Surg* 2015; 262: 955-964 [PMID: 26501490 DOI: 10.1097/SLA.0000000000001078]
- 18 Gunnells DJ Jr, Morris MS, DeRussy A, Gullick AA, Malik TA, Cannon JA, Hawn MT, Chu DI. Racial Disparities in Readmissions for Patients with Inflammatory Bowel Disease (IBD) After Colorectal Surgery. *J Gastrointest Surg* 2016; 20: 985-993 [PMID: 26743885 DOI: 10.1007/s11605-015-3068-9]
- 19 Akinyemiju T, Meng Q, Vin-Raviv N. Race/ethnicity and socioeconomic differences in colorectal cancer surgery outcomes: analysis of the nationwide inpatient sample. *BMC Cancer* 2016; 16: 715 [PMID: 27595733 DOI: 10.1186/s12885-016-2738-7]
- 20 Damle RN, Flahive JM, Davids JS, Maykel JA, Sturrock PR, Alavi K. Examination of Racial Disparities in the Receipt of Minimally Invasive Surgery Among a National Cohort of Adult Patients Undergoing Colorectal Surgery. *Dis Colon Rectum* 2016; 59: 1055-1062 [PMID: 27749481 DOI: 10.1097/DCR.0000000000000692]
- 21 Giglia MD, DeRussy A, Morris MS, Richman JS, Hawn MT, Vickers SM, Knight SJ, Chu DI. Racial disparities in length-of-stay persist even with no postoperative complications. *J Surg Res* 2017; 214: 14-22 [PMID: 28624035 DOI: 10.1016/j.jss.2017.02.063]
- 22 Lucas FL, Stukel TA, Morris AM, Siewers AE, Birkmeyer JD. Race and surgical mortality in the United States. *Ann Surg* 2006; 243: 281-286 [PMID: 16432363 DOI: 10.1097/01.sla.0000197560.92456.32]
- 23 Artinyan A, Mailey B, Sanchez-Luege N, Khalili J, Sun CL, Bhatia S, Wagman LD, Nissen N, Colquhoun SD, Kim J. Race, ethnicity, and socioeconomic status influence the survival of patients with hepatocellular carcinoma in the United States. *Cancer* 2010; 116: 1367-1377 [PMID: 20101732 DOI: 10.1002/cncr.24817]
- 24 Feyssa E, Jones-Burton C, Ellison G, Philosophe B, Howell C. Racial/ethnic disparity in kidney transplantation outcomes: influence of donor and recipient characteristics. *J Natl Med Assoc* 2009; 101: 111-115 [PMID: 19378626 DOI: 10.1016/S0027-9684(15)30822-1]
- 25 Singh TP, Almond C, Givertz MM, Piercey G, Gauvreau K. Improved survival in heart transplant recipients in the United States: racial differences in era effect. *Circ Heart Fail* 2011; 4: 153-160 [PMID: 21228316 DOI: 10.1161/CIRCHEARTFAILURE.110.957829]
- 26 Mahle WT, Kanter KR, Vincent RN. Disparities in outcome for black patients after pediatric heart transplantation. *J Pediatr* 2005; 147: 739-743 [PMID: 16356422 DOI: 10.1016/j.jpeds.2005.07.018]
- 27 Torain MJ, Maragh-Bass AC, Dankwa-Mullen I, Hisam B, Kodadek LM, Lilley EJ, Najjar P, Changoor NR, Rose JA Jr, Zogg CK, Maddox YT, Britt LD, Haider AH. Surgical Disparities: A Comprehensive Review and New Conceptual Framework. *J Am Coll Surg* 2016; 223: 408-418 [PMID: 27296524 DOI: 10.1016/j.jamcollsurg.2016.04.047]
- 28 Kirby JB, Kaneda T. Unhealthy and uninsured: exploring racial differences in health and health insurance coverage using a life table approach. *Demography* 2010; 47: 1035-1051 [PMID: 21308569 DOI: 10.1007/BF03213738]
- 29 Hughes M, Coolson MM, Aahlin EK, Harrison EM, McNally SJ, Dejong CH, Lassen K, Wigmore SJ. Attitudes of patients and care providers to enhanced recovery after surgery programs after major abdominal surgery. *J Surg Res* 2015; 193: 102-110 [PMID: 25066187 DOI: 10.1016/j.jss.2014.06.032]
- 30 Wahl TS, Goss LE, Morris MS, Gullick AA, Richman JS, Kennedy GD, Cannon JA, Vickers SM, Knight SJ, Simmons JW, Chu DI. Enhanced Recovery After Surgery (ERAS) Eliminates Racial Disparities in Postoperative Length of Stay After Colorectal Surgery. *Ann Surg* 2018; 268: 1026-1035 [PMID: 28594746 DOI: 10.1097/SLA.0000000000002307]
- 31 Leeds IL, Alimi Y, Hobson DR, Efron JE, Wick EC, Haut ER, Johnston FM. Racial and Socioeconomic Differences Manifest in Process Measure Adherence for Enhanced Recovery After Surgery Pathway. *Dis Colon Rectum* 2017; 60: 1092-1101 [PMID: 28891854 DOI: 10.1097/DCR.0000000000000879]
- 32 Lau BD, Haider AH, Streiff MB, Lehmann CU, Kraus PS, Hobson DB, Kraenzlin FS, Zeidan AM, Pronovost PJ, Haut ER. Eliminating Health Care Disparities With Mandatory Clinical Decision Support: The Venous Thromboembolism (VTE) Example. *Med Care* 2015; 53: 18-24 [PMID: 25373403 DOI: 10.1097/MLR.0000000000000251]
- 33 Hall WJ, Chapman MV, Lee KM, Merino YM, Thomas TW, Payne BK, Eng E, Day SH, Coyne-Beasley T. Implicit Racial/Ethnic Bias Among Health Care Professionals and Its Influence on Health Care Outcomes: A Systematic Review. *Am J Public Health* 2015; 105: e60-e76 [PMID: 26469668 DOI: 10.2105/AJPH.2015.302903]
- 34 Haider AH, Schneider EB, Sriram N, Dossick DS, Scott VK, Swoboda SM, Losonczy L, Haut ER, Efron DT, Pronovost PJ, Lipsett PA, Cornwell EE 3rd, MacKenzie EJ, Cooper LA, Freischlag JA. Unconscious race and social class bias among acute care surgical clinicians and clinical treatment decisions. *JAMA Surg* 2015; 150: 457-464 [PMID: 25786199 DOI: 10.1001/jamasurg.2014.4038]
- 35 Britton BV, Nagarajan N, Zogg CK, Selvarajah S, Schupper AJ, Kironji AG, Lwin AT, Cerullo M, Salim A, Haider AH. Awareness of racial/ethnic disparities in surgical outcomes and care: factors affecting acknowledgment and action. *Am J Surg* 2016; 212: 102-108.e2 [PMID: 26522774 DOI: 10.1016/j.amjsurg.2015.07.022]
- 36 Nelson A. Unequal treatment: confronting racial and ethnic disparities in health care. *J Natl Med Assoc* 2002; 94: 666-668 [PMID: 12152921]
- 37 Aarts MA, Rotstein OD, Pearsall EA, Victor JC, Okrainec A, McKenzie M, McCluskey SA, Conn LG, McLeod RS; iERAS group. Postoperative ERAS Interventions Have the Greatest Impact on Optimal Recovery: Experience With Implementation of ERAS Across Multiple Hospitals. *Ann Surg* 2018; 267: 992-997 [PMID: 29303803 DOI: 10.1097/SLA.0000000000002632]
- 38 Lee YM, Yu HY, You MA, Son YJ. Impact of health literacy on medication adherence in older people with chronic diseases. *Collegian* 2017; 24: 11-18 [PMID: 29218957 DOI: 10.1016/j.colegn.2015.08.003]

编辑: 王禹乔 电编: 刘继红





Published by **Baishideng Publishing Group Inc**
7041 Koll Center Parkway, Suite 160, Pleasanton,
CA 94566, USA
Telephone: +1-925-3991568
E-mail: bpgoffice@wjgnet.com
<https://www.wjgnet.com>



ISSN 1009-3079

