LETTERS TO THE EDITOR

Myotomy and EndoFLIP: repeated measurements require a different statistical test

To the Editor:

With great interest, we read the study comparing preoperative, intraoperative, and follow-up functional luminal imaging probe measurements in patients undergoing myotomy for achalasia cardia.1 In that study, the esophagogastric junction distensibility index (EGJ-DI) was measured at 4 time points (preoperative, induction, postmyotomy, and follow-up) in patients undergoing peroral endoscopic myotomy (POEM) and laparoscopic Heller myotomy (LHM). The authors concluded that the preoperative and induction mean EGJ-DIs were similar, with a significant increase in DI after POEM. At the 12-month follow-up visit, there was a decrease in DI as compared with the postmyotomy value, although it was higher than preoperative values.

These values at 4 different time points were compared by use of a paired t test. However, the paired t test should be used to compare continuous variables at 2 different time points.2 For comparison of more than 2 mean scores at different time points, repeated-measures analysis of variance (ANOVA) should be performed.3 The application of a paired t test to such data multiple times increases type 1 errors in multiples of 5% for each comparison. A Greenhouse-Geisser correction should be used if sphericity assumption is violated. Pairwise comparisons should be analyzed with a Bonferroni post hoc test, to find out which 2 specific means are statistically different.

If overall ANOVA is not statistically significant, then a pairwise comparison should not be performed. The authors should use repeated-measures ANOVA for analysis of mean EGJ-DI at 4 different time points.

DISCLOSURE

All authors disclosed no financial relationships.

Nitin Jagtap, MD, DNB
C. Sai Kumar, MD
Rakesh Kalapala, MD, DNB
D. Nageshwar Reddy, MD, DM
Department of Medical Gastroenterology
Asian Institute of Gastroenterology
Hyderabad, India

REFERENCES


Cap-assisted endoscopic full-thickness resection for small gastrointestinal stromal tumors

To the Editor:

We read with great interest the article by Yang et al,1 who showed the superiority of cap-assisted endoscopic full-thickness resection (EFTR) compared with conventional EFTR for small GI stromal tumors (GISTs). Their results are clinically important. However, we wish to further discuss some issues.

First, the authors used microscopic lesion size as a variable to correct for bias. In fact, the actual resection size of conventional EFTR may often be larger than that of cap-assisted EFTR because of the characteristics of its operation steps. In this study, conventional EFTR used more titanium clips than did cap-assisted EFTR, which supports this possibility. Although no data were presented, we suspected that there was a significant difference in resection size between the 2 groups. Use of resection size as a control for bias may be a better choice, because both the operation time and the occurrence of adverse events are commonly related to the actual size of resection rather than the actual size of the lesion.

Second, the authors concluded that cap-assisted EFTR had lower adverse events. However, it should be noted that the only adverse event significantly different between the two groups was postoperative inflammation, rather than other EFTR-related major adverse events such as delayed bleeding, delayed perforation, and peritonitis.2 The authors also concluded that cap-assisted EFTR resulted in faster recovery and shorter hospitalization time. In our opinion, the reasons for these differences between the 2 groups need to be considered and explained. Given that there were no serious adverse events in either group, the differences in the time to first liquid diet and the total days in hospital could have been subjectively determined, or could have been influenced by other factors.

In conclusion, the explanation of the above issues will help to further illustrate the significance of this study.
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Xiu-He Lv, MD
Qing Lu, MD
Jin-Lin Yang, MD

Department of Gastroenterology and Hepatology
Sichuan University-Oxford University Gastrointestinal Cancer Centre
West China Hospital
Sichuan University
Chengdu, Sichuan, China

REFERENCES


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Response:

We thank Drs Yang et al1 for their suggestions and issues on our manuscript.2 They were constructive questions and suggestions. Next, we shall answer their questions.

The first question was about size selection. Owing to the collinearity between specimen size and tumor size on the outcome of the study, we chose the tumor size after considering the following issues. First, resection specimens often included mucosal parts and neoplastic parts, and they were mostly irregular in shape. It was difficult to accurately measure the maximum diameter of the specimen during pathologic processing and evaluation. Therefore, the accuracy of specimen size data was difficult to guarantee. Second, according to our description of the 2 operation procedures, the size of the specimen, especially the amount of mucosal resection, would be affected by the operation method, but the size of the lesion would not. Therefore, it would have also caused a collinearity problem if the specimen size and operation method had been included in the regression equation at the same time. Third, because our inclusion criterion was small stromal tumors, that is, tumor size <1.5 cm, tumor size was our greatest concern. The choice of operation method was initially determined by the tumor size under the naked eye or by imaging, whereas the size of the specimen could not reflect the tumor size. Last, the 2008 National Institutes of Health risk classification was also based on pathologic size, not resected tissue size.

In addition, data from our center showed that both operation methods had no serious adverse events. Our report emphasized that the incidence of postoperative inflammation and usage rate of heat clamp hemostasis were lower. On the basis of retrospective studies that may have had unmeasurable confounding variables, we will conduct prospective studies in the future to clarify the criteria for diet recovery and discharge to further verify our research results.

We thank Yang et al1 very much for their attention to our research. The Department of Gastroenterology of West China Hospital is also at an advanced level in digestive endoscopy in China. In the future, we hope that Yang et al1 can also participate in prospective research and accomplish this valuable work together with us.

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Jinping Yang, MS
Department of Gastroenterology
Nanjing Drum Tower Hospital Clinical College of Nanjing Medical University

Yongyue Wei, MD, PhD
Department of Biostatistics
School of Public Health
Nanjing Medical University

Lei Wang, MD, PhD
Department of Gastroenterology
The Affiliated Drum Tower Hospital of Nanjing University Medical School

Guifang Xu, MD, PhD
Department of Gastroenterology
Nanjing Drum Tower Hospital Clinical College of Nanjing Medical University

Department of Gastroenterology
The Affiliated Drum Tower Hospital of Nanjing University Medical School
Nanjing, China

REFERENCES


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Endoscopic full-thickness resection for small GI stromal tumors, or should nature take its course?

To the Editor:

Yang et al,1 in their recently published article, compared outcomes of endoscopic full-thickness resection (EFR) and

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