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

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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.