The Quality of Life Measurement in Recurrent Acute Pancreatitis Needs to be More Accurate

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To the Editor: We read the recently published study on the physical and mental quality of life (QOL) in recurrent acute pancreatitis (RAP) patients [1]. It is a large sample study, which compared the QOL between RAP, chronic pancreatitis (CP), and non-disease controls. However, some of the study is confusing.

In the present study, RAP was defined by evidence of two or more documented attacks of acute pancreatitis (AP), but without imaging or histological evidence of chronic pancreatitis. However, the definition of RAP is still controversial. In some studies, RAP was defined as two or more well-documented separate episodes of pancreatitis that resolved with more than 3 months between attacks [2]. As pancreatic parenchymal changes may persist after the complete normalization of pancreatic enzymes and resolution of patient's symptoms, the definition is less specific if the interval between the acute attacks is short [3]. In some other studies, RAP was defined as more than two acute attacks within 1 year, as acute attacks after a long interval may have different etiologies [4]. Thus, patients included as "RAP" in the present study are "patients with two or more AP attacks" indeed, which are heterogeneous.

Endocrine insufficiency was concluded to have significant effect on Physical

Component Summary in RAP patients. However, RAP patients may have transient endocrine insufficiency during the acute attack, but between episodes of pancreatitis, the blood glucose level was normal [3]. Here comes the question, what point in time the endocrine function was assessed. Is this endocrine insufficiency during acute attack or between episodes of pancreatitis?

The definition of endocrine insufficiency was also unclear. Are patients with impaired glucose tolerance also defined as endocrine insufficiency or just patients with diabetes mellitus (DM) included? Also, there are three types of DM, among which only type 3c is pancreatogenous. DM is a common disease with the prevalence of 0.84% in the United States, and type 2 DM accounted for 43% of total diabetes cases [5]. It is difficult to differentiate type 3c and type 2 DM. Thus, it is really confusing how endocrine insufficiency could be identified in the present study.

In conclusion, this is a large sample study about the physical and mental QOL in RAP patients. However, definition of RAP, endocrine insufficiency, and point of time to estimate endocrine function were unclear.

CONFLICT OF INTEREST

Guarantor of the article: Liang-Hao Hu, MD and Zhao-Shen Li, MD

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Response to Hao et al.

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To the Editor: We thank Drs. Hao, Li and Hu [1] for their comments on our recent article published on the effect of recurrent acute pancreatitis in the absence of overt chronic pancreatitis (RAP) on quality of life [2]. We appreciate the opportunity to respond on behalf of our co-authors.

In respect to the first point regarding the heterogeneous definition of RAP, we agree that there are different intervals between attacks used to define RAP. For the purposes of the North American Pancreatitis Study 2 (NAPS2), the source of data for this study, RAP was determined at the discretion of the treating physician; therefore, the interval between attacks is not known [3]. However, as all of the enrolling physicians in the NAPS consortium are expert pancreatologists and the definition of chronic pancreatitis was quite rigorous,

the probability of including patients with obvious chronic pancreatitis as RAP is quite low.

In regard to their second and third points, the diagnosis of endocrine insufficiency was reported by the physician-investigator based on work up to the time of enrollment into the study, including repeated elevations in blood sugar, hemoglobin A1c or use of antidiabetic medications. As such, the diagnosis of endocrine insufficiency in our study being attributable solely to transient elevations in blood sugar levels during an episode of acute pancreatitis is unlikely. We agree with Dr. Hao, Li and Hu that it can be important to differentiate between Type 2 and 3c diabetes, but for the purposes of this quality of life study, we believe this differentiation is less important. Most important was the fact that having diabetes, regardless of type, negatively affected the patient's quality of life score.

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Balloon-Occluded Retrograde Transvenous Obliteration (BRTO) or Coil-Assisted Retrograde Transvenous Obliteration (CARTO): Which One Do We Choose?

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To the Editor: We read with great interest the recent article published in the *American Journal of Gastroenterology* by Edward W. Lee et al. [1]. This retrospective study identified that coil-assisted retrograde transvenous obliteration (CARTO) was an effective and safe treatment option for overt hepatic encephalopathy (HE) due to spontaneous portosystemic shunt (SPSS). We appreciate the novel innovation; however, several issues about the application of CARTO in the current study may need to be discussed here.

First, clinical success rate of CARTO in this article is not more effective than that of balloon-occluded retrograde transvenous obliteration (BRTO) described before [2] (91% (39/43) vs 100% (17/17)). This might be associated with the use of gelfoam slurry as the embolic material. Kim et al. [3] proposed that gelfoam could not offer the permanent endothelial destruction and thrombosis as seen with sclerosants.

Actually, the low toxic sclerosant used in our study [4], lauromacrogol, provided higher complete obliteration rate of 100% (31/31).

Second, based on the number of coils used during the procedure, CARTO is much more costlier than BRTO because coils are very expensive. The average number of coils used in this paper is 13.7 (range: 4–35), which could be a heavy economic burden for the patient. Relatively, a single intravascular balloon brings much more economic benefit.

Finally, the average procedure time is longer for CARTO than BRTO due to deployment of multiple coils versus placement of a single balloon for reduction of blood flow in the shunt. Indeed, the average procedure time is 2.1 h in the article and 2.82 h in another paper [5] by the same author using CARTO for treatment of gastric varices. However, the average procedure time in our BRTO study [4] was 1.6 h ($n = 31$, range: 40 min–3.0 h). Longer procedure time means more exposure of radiation for both the patient and operator, and more risk of procedure-related complications.

In summary, CARTO remains challenges including relatively low cost-effectiveness and long procedure time. Actually, CARTO is advantageous in situations like larger shunt size and severe vessel tortuosity not available for placement of the balloon [6]. BRTO with low toxic sclerosant like lauromacrogol, appears suitable as the first line choice for treatment of patients with refractory HE and SPSS. Compared studies regarding BRTO and CARTO with larger sample size are needed for further conclusion.

CONFLICT OF INTEREST

Guarantor of the article: Li Yang, MD.

Specific authors contribution: Yongjun Zhu was in charge of collecting paper information and clinical data. Yongjun Zhu and Xiaoze Wang contributed to the statistics and draft the manuscript. Xuefeng Luo and Li Yang were responsible for paper polishing and approved the final manuscript.

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