**Name of Journal:** *World Journal of Clinical Cases*

**Manuscript NO:** 80308

**Manuscript Type:** LETTER TO THE EDITOR

**Incidence and clinical treatment of hypertriglyceridemic acute pancreatitis: A few issues**

Yang QY *et al*. Comments on HTG-AP

Qun-Ying Yang, Qian Zhao, Jian-Wen Hu

**Qun-Ying Yang, Qian Zhao, Jian-Wen Hu,** Department of Gastroenterology, Dongyang People's Hospital, Dongyang 322100, Zhejiang Province, China

**Author contributions:** Yang QY and Zhao Q reviewed the literature and contributed to manuscript drafting; Hu JW was responsible for the revision of the manuscript for important intellectual content; All authors reviewed and approved the final version.

**Corresponding author: Jian-Wen Hu, PhD, Professor,** Department of Gastroenterology, Dongyang People's Hospital, No. 60 Wuning West Road, Dongyang 322100, Zhejiang Province, China. cchcsq0529@163.com

**Received:** September 22, 2022

**Revised:** November 16, 2022

**Accepted:** January 3, 2023

**Published online:** January 16, 2023

**Abstract**

Hypertriglyceridemia is a well-recognized etiology of acute pancreatitis, and the incidence of hypertriglyceridemic acute pancreatitis (HTG-AP) has increased in frequency worldwide in response to lifestyle changes. It is crucial to identify hypertriglyceridemia as the cause of pancreatitis and initiate appropriate treatment. Insulin treatment produces effective lowering of triglycerides, but in our opinion, non-diabetic patients with HTG-AP require separate consideration to avoid hypoglycemia.

**Key Words:** Hypertriglyceridemic acute pancreatitis; Incidence; Etiology; Insulin; Treatment

**©The** **Author(s) 2023.** Published by Baishideng Publishing Group Inc. All rights reserved.

**Citation:** Yang QY, Zhao Q, Hu JW. Incidence and clinical treatment of hypertriglyceridemic acute pancreatitis: A few issues. *World J Clin Cases* 2023; 11(2): 479-481

**URL:** <https://www.wjgnet.com/2307-8960/full/v11/i2/479.htm>

**DOI:** https://dx.doi.org/10.12998/wjcc.v11.i2.479

**Core Tip:** This is a comment on an article concerning the incidence and clinical characteristics of hypertriglyceridemic acute pancreatitis (HTG-AP). We believe that the risk of hypoglycemia must be considered and described for non-diabetic patients with HTG-AP receiving insulin infusion to decrease serum triglyceride level.

**TO THE EDITOR**

We read with great interest the article published by Lin *et al*[1], which retrospectively analyzed the incidence and clinical characteristics of 371 patients with hypertriglyceridemic acute pancreatitis (HTG-AP) in their hospital over the past 10 years. This is worth paying more attention to, as HTG-AP is often associated with persistent organ failure and a poor prognosis[2]. The authors concluded that the incidence of HTG-AP was significant increase and patients with mild and moderately severe acute pancreatitis can be treated with insulin safely and effectively. However, in our opinion, there are several viewpoints in this study that merit further discussion.

First, the Introduction section states that the incidence and mortality of HTG-AP have surpassed alcohol to become the second leading cause of AP in China. It is worth reflecting on this statement further. This viewpoint contradicts the conclusions of its cited reference[3] in the article, which concludes that hypertriglyceridemia is a relatively uncommon (9%) cause of AP, but that patients with hypertriglyceridemia have a high (14%) incidence of AP. The reference does not support their viewpoint.

Second, the majority of recent studies indicate that hypertriglyceridemia is the third most common etiology of AP, secondary to gallstones and alcohol abuse[4-6]. A multicenter 5-year study[7] on the etiology of AP in Beijing found that alcoholic and HTG-AP were higher in patients below 50 years and biliary pancreatitis was higher in patients over 70 years, so we think that the etiology of AP may differ according to age, sex, and severity. The morbidity of HTG-AP has increased at a fast rate in recent years, but its ranking is controversial.

Third, the Results section states that the serum triglyceride (TG) levels of patients with mild and moderately severe AP significantly decreased by intravenous insulin without hemoperfusion. However, we believe further explanation regarding the method and safety of intravenous insulin is necessary. There are no current guidelines for the management of HTG-AP, although the rapid reduction of TG level is considered an important therapeutic goal. Insulin, heparin, plasma exchange, and hemoperfusion are the most frequently reported therapies[8-11]. Insulin has been deemed the sole hypoglycemic hormone in mammals since its discovery in 1921. Continuous administration of exogenous insulin achieved normoglycemia and corrected severe hypertriglyceridemia in all patients with type 2 diabetes presenting with severe hypertriglyceridemia and hyperglycemia[12]. However, the risk of hypoglycemia for non-diabetic patients needs to be considered, and appropriate insulin infusion doses, frequent blood glucose checks, and concomitant glucose infusion implemented are needed. The current available literature on this topic are scarce and largely consist of single case report; empirical initiation of a higher dextrose concentration infusion with glucose level titrations should be considered to avoid hypoglycemia[13,14].

Fourth, we agree with this statement that increased TG levels directly affected the determination of amylase. Spuriously, low plasma amylase has been noticed in presence of lactescent plasma, which affects the expression of biomarkers used for the follow-up of the acute pancreatitis episode[15].Visual examination of plasma represents a simple clinical sign, allowing the identification of severe hypertriglyceridemia at low cost.

In the end, this observational study can provide a reference for clinical practice, but the number of cases used for propensity score matching was relatively small, which possibly affected the statistical power. We believe that the diagnosis rate and therapeutic efficacy of HTG-AP merit further studies.

**REFERENCES**

1 **Lin XY**, Zeng Y, Zhang ZC, Lin ZH, Chen LC, Ye ZS. Incidence and clinical characteristics of hypertriglyceridemic acute pancreatitis: A retrospective single-center study. *World J Gastroenterol* 2022; **28**: 3946-3959 [PMID: 36157550 DOI: 10.3748/wjg.v28.i29.3946]

2 **Kim SJ**, Kang H, Kim EJ, Kim YS, Cho JH. Clinical features and outcomes of hypertriglyceridemia-induced acute pancreatitis: Propensity score matching analysis from a prospective acute pancreatitis registry. *Pancreatology* 2020; **20**: 617-621 [PMID: 32265135 DOI: 10.1016/j.pan.2020.03.013]

3 **Carr RA**, Rejowski BJ, Cote GA, Pitt HA, Zyromski NJ. Systematic review of hypertriglyceridemia-induced acute pancreatitis: A more virulent etiology? *Pancreatology* 2016; **16**: 469-476 [PMID: 27012480 DOI: 10.1016/j.pan.2016.02.011]

4 **Hassanloo J**, Béland-Bonenfant S, Paquette M, Baass A, Bernard S. Prevalence, severity and management of hypertriglyceridemia-associated pancreatitis; A 7-year retrospective cohort study at Canadian quaternary care hospitals. *J Clin Lipidol* 2022; **16**: 455-462 [PMID: 35659855 DOI: 10.1016/j.jacl.2022.05.064]

5 **Zheng CB**, Zheng ZH, Zheng YP. Therapeutic plasma exchange for hyperlipidemic pancreatitis: Current evidence and unmet needs. *World J Clin Cases* 2021; **9**: 5794-5803 [PMID: 34368298 DOI: 10.12998/wjcc.v9.i21.5794]

6 **Jiang X**, Zheng YW, Bao S, Zhang H, Chen R, Yao Q, Kou L. Drug discovery and formulation development for acute pancreatitis. *Drug Deliv* 2020; **27**: 1562-1580 [PMID: 33118404 DOI: 10.1080/10717544.2020.1840665]

7 **Zheng Y**, Zhou Z, Li H, Li J, Li A, Ma B, Zhang T, Liao Q, Ye Y, Zhang Z, Yang Y, Wang Z, Zhang Z, Yang J, Li F. A multicenter study on etiology of acute pancreatitis in Beijing during 5 years. *Pancreas* 2015; **44**: 409-414 [PMID: 25438072 DOI: 10.1097/MPA.0000000000000273]

8 **Altinkaya E**, Aktas A. Insulin and Heparin Therapies in Acute Pancreatitis due to Hypertriglyceridemia. *J Coll Physicians Surg Pak* 2021; **31**: 1337-1340 [PMID: 34689493 DOI: 10.29271/jcpsp.2021.11.1337]

9 **Marić N**, Mačković M, Bakula M, Mucić K, Udiljak N, Marušić M. Hypertriglyceridemia-induced pancreatitis treated with continuous insulin infusion-Case series. *Clin Endocrinol (Oxf)* 2022; **96**: 139-143 [PMID: 34263462 DOI: 10.1111/cen.14554]

10 **Gayam V**, Mandal AK, Gill A, Khalid M, Sangha R, Khalid M, Garlapati P, Bhattarai B. A Rare Case of Acute Pancreatitis Due to Very Severe Hypertriglyceridemia (>10 000 mg/dL) Successfully Resolved With Insulin Therapy Alone: A Case Report and Literature Review. *J Investig Med High Impact Case Rep* 2018; **6**: 2324709618798399 [PMID: 30186885 DOI: 10.1177/2324709618798399]

11 **Gubensek J**, Andonova M, Jerman A, Persic V, Vajdic-Trampuz B, Zupunski-Cede A, Sever N, Plut S. Comparable Triglyceride Reduction With Plasma Exchange and Insulin in Acute Pancreatitis - A Randomized Trial. *Front Med (Lausanne)* 2022; **9**: 870067 [PMID: 35492338 DOI: 10.3389/fmed.2022.870067]

12 **Henderson SR**, Maitland R, Mustafa OG, Miell J, Crook MA, Kottegoda SR. Severe hypertriglyceridaemia in Type 2 diabetes mellitus: beneficial effect of continuous insulin infusion. *QJM* 2013; **106**: 355-359 [PMID: 23417910 DOI: 10.1093/qjmed/hcs238]

13 **Reed JM**, Hogan BM, Nasser-Ghodsi N, Loftus CG. Management of Hypertriglyceridemia-Induced Acute Pancreatitis in a Nondiabetic Patient. *Mayo Clin Proc Innov Qual Outcomes* 2021; **5**: 230-235 [PMID: 33718798 DOI: 10.1016/j.mayocpiqo.2021.02.001]

14 **Park SY**, Chung JO, Cho DK, Lee WS, Kim HS, Choi SK, Rew JS, Chung MY. [Hypertriglyceridemia-induced pancreatitis treated with insulin in a nondiabetic patient]. *Korean J Gastroenterol* 2010; **55**: 399-403 [PMID: 20571309 DOI: 10.4166/kjg.2010.55.6.399]

15 **Tremblay K**, Méthot J, Brisson D, Gaudet D. Etiology and risk of lactescent plasma and severe hypertriglyceridemia. *J Clin Lipidol* 2011; **5**: 37-44 [PMID: 21262505 DOI: 10.1016/j.jacl.2010.11.004]

**Footnotes**

**Conflict-of-interest statement:** The authors have no conflicts of interest to declare.

**Open-Access:** This article is an open-access article that was selected by an in-house editor and fully peer-reviewed by external reviewers. It is distributed in accordance with the Creative Commons Attribution NonCommercial (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: https://creativecommons.org/Licenses/by-nc/4.0/

**Provenance and peer review:** Unsolicited article; Externally peer reviewed.

**Peer-review model:** Single blind

**Peer-review started:** September 22, 2022

**First decision:** November 5, 2022

**Article in press:** January 3, 2023

**Specialty type:** Gastroenterology and hepatology

**Country/Territory of origin:** China

**Peer-review report’s scientific quality classification**

Grade A (Excellent): 0

Grade B (Very good): 0

Grade C (Good): 0

Grade D (Fair): D, D

Grade E (Poor): 0

**P-Reviewer:** Kharlamov AN, Netherlands; Yelamanchi R, India **S-Editor:** Zhang H **L-Editor:** Filipodia **P-Editor:** Zhang H



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

**Help Desk:** https://www.f6publishing.com/helpdesk

https://www.wjgnet.com



**© 2023 Baishideng Publishing Group Inc. All rights reserved.**