Update on management of hypertriglyceridaemia-induced acute pancreatitis

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DESCRIPTION

A 36-year-old woman came to emergency room for the complaint of acute onset pain in abdomen radiating to back 1 last 1 day. Medical history was significant for alcohol and substance use disorder with last binge alcohol drinking 12 hours prior to her emergency visit. Blood work suggested high blood alcohol levels (233 mg/dL), high lipase levels (450 U/L) and high triglyceride levels (1870 mg/dL). CT of abdomen showed severe and extensive peripancreatic inflammatory changes, surrounding the pancreas extending laterally towards both the paracolic gutters suggesting severe acute pancreatitis (figure 1). She was given 2 L of fluid bolus with normal saline and initiated on intravenous infusion of regular insulin 0.1 units/kg/hour, which was continued until next 24 hours until triglyceride level came down below 500 mg/dL (figure 2). Dextrose/normal saline was continued for next few days until patient started tolerating diet. Patient was prescribed oral gemfibrozil 600 mg twice daily and counselled for dietary modification and referred to detoxification centre to prevent further recurrence.

Like our case, Ramesh *et al* also reported successful outcome in a patient with hypertriglyceridemia induced acute pancreatitis.¹ Imaging studies are very important in evaluating extremely rare and complicated abdominal diseases.^{2–4} While alcohol was a clear predisposition in our case, diabetes was likely the inciting factor in Ramesh's *et al* case, which did not respond to insulin therapy and finally required two sessions of plasmapheresis. Recently, there has been debate about the use of plasmapheresis as an initial therapy versus in refractory cases. Cost, availability and complications are major concerns for considering plasmapheresis as an upfront modality of therapy. As per updates in the 7th edition of the American Society for Apheresis guidelines, plasmapheresis as an initial therapy can be considered in any one of the following: (1) hypocalcaemia; (2) lactic acidosis; (3) two or more signs of worsening inflammation; and (4) worsening organ dysfunction.⁵ To remember that, citrate anticoagulation during plasmapheresis has an independent survival benefit and hence recommended. Role of heparin is currently controversial as it is known to stimulate

Figure 1 CT abdomen showing severe and extensive peripancreatic inflammatory changes, surrounding the pancreas extending laterally towards both the paracolic gutters.

Figure 2 Graph depicting the intensive care unit care during first 48 hours with timeline of using insulin drip, intravenous fluids and lab work results.

release of endothelial lipoprotein lipase, which promotes the conversion of triglycerides to free fatty acids, one of the lipotoxic agents, and hence heparin should not be used as an anticoagulation.⁶

A recent prospective RCT by He *et al* on 66 hypertriglyceridaemia-induced acute pancreatitis patients received either early high-volume haemofiltration (HVHF) or low molecular weight heparin (LMWH) +insulin as an emergent triglyceride-lowering therapy. As per the results, HVHF lowered triglyceride levels more quickly than LMWH+insulin therapy, but no difference was noted in terms of clinical outcomes, local pancreatic complications, need of surgery and costs.⁷ Apart from the indications, availability, benefits of early versus late, complications associated with use of plasmapheresis, cost is also an important factor that affects the choice of therapy. Plasmapheresis usually costs \$250/session in developing countries compared with \$1000 to \$2000/session in developed countries.

Learning points

- ▶ Hypertriglyceridemia induced acute pancreatitis is a rare and challenging entity and timely intervention is essential to prevent mortality.
- ▶ Plasmapheresis is beneficial in rapid decrease of triglyceride levels without any survival benefit.

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REFERENCES

- 1 Ramesh BNR, Raju S, Surendra M, *et al*. Severe Hypertriglyceridemia-induced Acute Pancreatitis: Successful Management by Plasmapheresis. *Indian J Nephrol* 2019;29:217–9.
- 2 Sahu KK, Sherif AA, Mishra A, *et al*. Intestinal Obstruction Secondary to Ventral Hernia. *Balkan Med J* 2019;36:198.

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- 3 Sahu KK, Yanamandra U, Kakkar N, *et al.* Rare Presentation of Mucormycosis in Aplastic Anaemia: Isolated Hepatic Mucormycosis. *Mycopathologia* 2019;184:347–8.
- 4 Sahu KK, Sherif AA, Lopez CA. Omega sign: Radiological appearance of sigmoid volvulus. *J Med Imaging Radiat Oncol* 2019;63:82–3.
- 5 Ipe TS, Pham HP, Williams LA 3rd. Critical updates in the 7(th) edition of the American Society for Apheresis guidelines. *J Clin Apher* 2018;33:78–94.
- 6 Navina S, Acharya C, DeLany JP, *et al.* Lipotoxicity causes multisystem organ failure and exacerbates acute pancreatitis in obesity. *Sci Transl Med* 2011;3:107ra110.
- 7 He WH, Yu M, Zhu Y, *et al.* Emergent Triglyceride-lowering Therapy With Early High-volume Hemofiltration Against Low-Molecular-Weight Heparin Combined With Insulin in Hypertriglyceridemic Pancreatitis: A Prospective Randomized Controlled Trial. *J Clin Gastroenterol* 2016;50:772–8.

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