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Propofol Induced Acute Pancreatitis-A Rare Adverse Effect For A Common Drug

T.Clement, Umaparan G

Surgical Unit, Department of Surgery, Faculty of Medicine, University of Cyberjaya, Persiaran Bestari, Cyber 11, 63000 Cyberjaya, Selangor.

Abstract

Acute pancreatitis caused by a widely and commonly used anaesthetic drug, Propofol, is an uncommon event rarely reported in Malaysia's literature. Drugs induced acute pancreatitis is also a rare phenomenon in Malaysia, where the two common causes of acute pancreatitis here are gallstones and alcohol consumptions. The mechanism of the incidence of Propofol induced acute pancreatitis is still unknown and remain unclear. While this condition is a diagnosis of exclusion, management's principleremains the same as acute pancreatitis caused by other risk factors. We present a case of Propofol induced acute pancreatitis in an elderly lady aftera gynaecological surgery to highlight the rarity of the case and stress the possibility of acute pancreatitis after Propofol administration in a patient without other risk factors.

Keywords: Propofol, acute pancreatitis,

Introduction

Acute pancreatitis is a sudden inflammation of the pancreas that can manifest clinically invarious spectrum of clinical situations. The two most common causes of acute pancreatitis are gallstones and alcohol consumption. Rarely, acute pancreatitis is drug-induced where the exact incident rate andthe mechanism of action of drug-induced acute pancreatitisarestill unknown and remains unclear (1). Drugs commonly listed as the causative agent of acute pancreatitis include angiotensin-converting enzyme inhibitors, statins, steroids, oral contraceptives, hormone replacement therapy, diuretics, and highly active antiretroviral therapy, valproic acid and hypoglycaemic agents (2).

Propofol is a short-acting anaesthetic agentmostly used as a parenteral anaesthetic agent worldwide (3). Propofol is a lipid-based hypnotic agent widely used during major surgeries and short procedures such as endoscopy and sedation of patients undergoing mechanical ventilation. While Propofol usage is common, the incidence of acute pancreatitis induced by Propofol is still rare, and only a few cases were reported in this region. We are reporting a case of an elderly lady who was diagnosed to have acute pancreatitisone day after undergoing general anaesthesia with Propofol administration

during gynaecological surgery. She was not documented to have any evidence of other risk factors to develop acute pancreatitis, including consuming any other drugs.

Case Report

A 67yearsold lady presented to the Emergency Department complaining of severe abdominal pain, nausea, vomiting and fever.A day before this episode, she had undergone colposcopy and cervical biopsy under general anaesthesia to investigate the cause of herpost-menopausal bleeding. During thedaycare procedure, she was given 200mg of IV Propofol during induction by the anaesthetist. As this short procedure lasted about 15 minutes, she was not given any infusion of Propofol to maintain the general anaesthesia. She was also given 70% nitrous oxide and oxygen throughout the short duration of general anaesthesia, and intravenous Paracetamol was given for analgesia. She was then monitored post-surgically and was discharged well on the same day.She was discharged only with oral Paracetamol and given follow up appointment. She started to develop symptoms of acute abdomen the next morning and was rushed to hospital by the afternoon when her symptoms worsen.

During her post-operative presentation to the hospital, the patient was alert, conscious but appeareddehydrated. She was, however, hemodynamically stable. On palpation, the epigastric region was tender. However, no evidence of peritonitis found on her.Bowel sound was normal on auscultation. Examination by the gynaecologist who performed the first surgery revealed no significant complications from the surgery.

Blood investigations revealeda raise in total white cell count (17 $x10^9$/L). Serum amylase was significantly high documented at 3397u/L. All other blood investigations, including renal profile, liver function test and arterial blood gas (ABG),were within normal parameters. Anerect chest X-ray was performed on the patient, and there was no gas under the diaphragm to indicate perforated viscus.Contrast-enhanced CT abdomen and pelvis of the patient indicated hypodensities in the peripancreatic areas of the right and left pararenal spaces (Figures 1, 2 and 3), suggesting acute pancreatitis with minimal ascites around the liver.

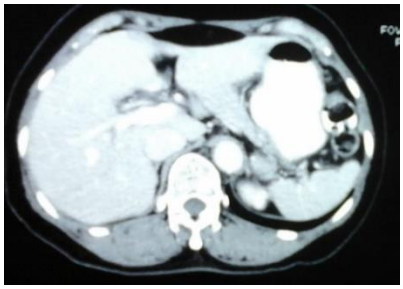

Figure 1

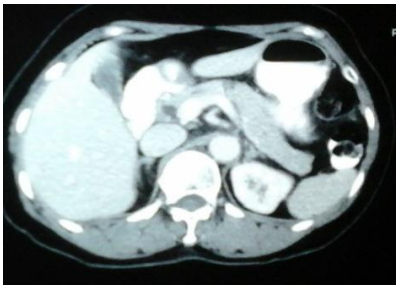

Figure 2

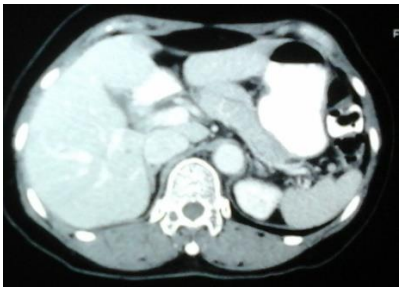

Figure 3

Figures 1,2 and 3:Showing oedematous pancreatic parenchyma and prominent vessel suggesting acute pancreatitis in the Contrast Enhance CT of Abdomen

The patient was then admitted, managed, and monitored in-patientwith intravenous fluids, opioids analgesia, a proton-pump inhibitor, and allowed orally within a day of admission. The patient recovered well with conservative management and was discharged well three days later.

Discussion

Acute pancreatitis after propofol administration is a rare adverse event of this anaesthetic drug (4). Propofol-induced acute pancreatitis has been reported at 0.5% - 2 % ofall cases of acute pancreatitis (5). A short-acting Propofol is mostly used as ananaesthetic agent in the United States and worldwide (3). Propofol was approved by the US Food and Drug Administration(FDA) almostthree decades ago. Propofol has been extensively used during General Anaesthesia and induction of sedation for patients who require mechanical ventilation.

Furthermore, Propofol also used during short procedures such as endoscopytransoesophageal echocardiogram and abscess drainage (6). In some rare cases, the use of Propofol has been associated with idiopathic pancreatitis (7), and when using for a long period and in high doses, it can cause "Propofol infusion syndrome" (3). Propofol is insoluble in water. Hence when given, it is usually given in a lipid emulsion. The typical dose for Propofol is 1.5 to 2.5 mg/kg, followed by small boluses of low doses of infusion as maintenance of anaesthesia (3). Propofol is classified as a Class II drug in the Badalov classification (8) of drugs that induce acute pancreatitis (1). In a literature review by Scholten, it is reported that there was no definite causal relationship between Propofol and the incidence of acute pancreatitis (4), which make the mechanism of Propofol inducing acute pancreatitis remains unclear (1).A few theories were reported on the possible mechanism of propofol-induced acute pancreatitis, includinghypertriglyceridemia, hypersensitivity, or direct pancreatic toxicity of the drug (6).

Csomor, 2017, reported a case of acute pancreatitis after an elective thyroidectomy where Propofol was used as an anaesthetic agent. All other common causes were ruled out, and they concluded that their patient had developed acute necrotising pancreatitis confirmed through a contrast-enhanced CT scan (5). The incidentwassimilar to our patientdiagnosed and confirmedto have acute pancreatitis using a contrasted CT scan. The finding shows the importance of a contrast-enhanced CT scan of the abdomen in confirming the incidence of acute pancreatitis presenting with acute abdomen in the patient with doubtful presentation or without any risk factors.

In another report by Muniraj, the patient developed acute pancreatitis after administering propofol infusion in an intensive care setting and was found to have underlying hypertriglyceridemia (6). This report was different from our patient,who did not have any underlying illnessesbefore the surgery. She was not a critically ill patient, and she was not given any Propofol infusion but rather just a bolus. Thisfinding highlights that Propofol can cause acute pancreatitis in isolation without other risk factors such as hypertriglyceridemia, and Propofol can cause acute pancreatitis after both infusion and bolus administration.

Gottschlingreported that they encountered a similar situation of acute pancreatitishours after their patient was administrated with propofol bolus before a magnetic resonance imaging procedure (9). This is comparableto our patient who developed acute pancreatitis withina short duration of Propofol administration.This informationleads us back to the question of the mechanism of Propofol induced pancreatitis and whether the direct toxicity of the drug to the pancreatic parenchyma could be the most likely reason as acute pancreatitis in these cases occurs almost immediately after Propofol administration.

Conclusion

Propofol-induced acute pancreatitis is rare even though Propofol is one of the most used anaesthetic drugs daily for various reasons worldwide. Clinicians should always keep in mind that patient who received Propofol administration may be at risk of developing acute pancreatitis especially when other causes of the acute abdomen has been ruled out.

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