

## CASE REPORT

# A case of successful treatment with vasopressin for severe acute pancreatitis in a melancholic patient administered antipsychotic agents

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### ABSTRACT

We report a 50-year-old woman with severe acute pancreatitis induced shock, who was successfully treated with vasopressin. She took some antipsychotic agents for depression. Although treatment was started with continuous intravenous dopamine and noradrenaline, hypotension was not controlled. After continuous intravenous vasopressin was initiated, arterial blood pressure (BP) was raised and maintained. Vasopressin was effective to catecholamine-resistant shock in severe acute pancreatitis of the melancholic patient.

**Key words:** Vasopressin; Acute Pancreatitis; Shock, Catecholamine Resistant

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### INTRODUCTION

Severe acute pancreatitis is one of the refractory diseases with a high mortality rate. The prognosis is further exacerbated when it is accompanied with shock and multiorgan failure. Although most of the times shock can be treated by judicious use of catecholamines, these agents are not always effective in all cases. We report successful treatment with vasopressin in severe acute pancreatitis with catecholamine-resistant shock in a melancholic patient.

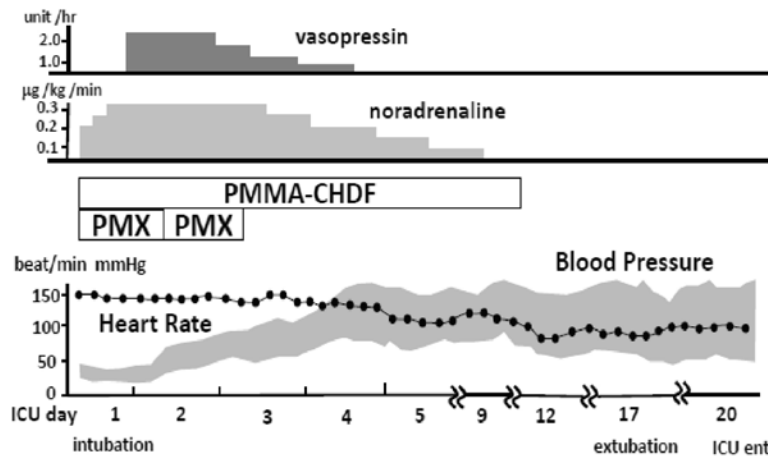
### CASE REPORT

A 50-year-old woman was admitted to our hospital because of disturbance of consciousness. She had experienced stomach ache and fever for the previous three days. She had a history of autoimmune hepatitis and depression, and had suffered from acute pancreatitis four times. She had been on tab quetiapine *fumarate* 75 mg orally and tab aripiprazole (*Abilify*<sup>TM</sup>) 6 mg orally for the past 6 years. On physical examination at the time of admission to the hospital, she had a temperature 38.0°C, BP 36/30 mmHg, heart rate 120 per min, SpO<sub>2</sub> 99% (on 7 L/min oxygen via face mask) and respiratory rate 29 per min. The Glasgow coma scale was 9/15.

Laboratory tests were ordered and the results are shown in Table 1.

**Table 1: Blood chemistry and enzymes**

Parameter	Value
Leucocytes count	4.2×10 <sup>9</sup> /L
C-reactive protein	468 mg/L
Hemoglobin	14.7 g/L
Hematocrit	0.45,
Platelets	48×10 <sup>9</sup> /L
Na	129 mmol/L
K	5.4 mmol/L
Cl	92 mmol/L
Urea nitrogen	4.9 mmol/L
Creatinine	661 μmol/L
Aspartate aminotransferase	182 U/L
Alanine aminotransferase	93 U/L
Lactate dehydrogenase	1066 U/L
Amylase	711 U/L



**Figure 1: Clinical course of treatment and hemodynamics**

[CHDF = Continuous hemodiafiltration; PMX-DHP = Polymyxin B-immobilized column direct hemoperfusion]

Arterial blood gas analysis (on oxygen 7 L/min via face mask) showed metabolic acidosis (pH 7.158, PaO<sub>2</sub> 203 Torr, PaCO<sub>2</sub> 35.5 Torr, HCO<sub>3</sub><sup>-</sup> 12.1 mmol/L, base excess -15.7 mmol/L). Abdominal contrast-enhanced computed tomography revealed marked liquid retention in the pancreas, its surrounding retroperitoneal space and the mesocolon. The lab results and radiological examination confirmed the diagnosis of severe acute pancreatitis.

The clinical course is shown in Figure 1. When the patient entered the intensive care unit (ICU), her BP was low (40/26 mmHg) even after the continuous infusion of noradrenaline at a rate of 0.3 µg/kg/min. She was intubated and ventilated, and treated with infusion of ringer's solution and antibiotics. Still her BP continued to be low. After the introduction of vasopressin (2.4 units/h), her BP improved and urine volume gradually increased. The patient fully recovered from shock, was removed from the ventilator and extubated. She was discharged from ICU on the 17th ICU day.

## DISCUSSION

In our melancholic patient, when even noradrenaline

infusion was not effective to treat severe shock with acute pancreatitis, vasopressin infusion successfully increased the BP gradually and the patient recovered from shock.

The possible causes for catecholamine-resistant shock in this patient were sepsis and long-term medication with antipsychotic agents. During sepsis, the mass production of nitric oxide (NO) by NO synthetase induced by bacterial endotoxins and cytokines is thought to cause hypotension, leading to diminished catecholamine response.<sup>1</sup> Antipsychotic medications quetiapine and aripiprazole used by the present case have α<sub>1</sub> receptor blocking actions and can potentially cause consequent catecholamine-resistant hypotension.

Regarding vasopressin, it inhibits the NO production which stimulated by IL-1 beta and endotoxin in septic shock,<sup>2</sup> although plasma levels of vasopressin can be extremely low in septic shock.<sup>3</sup> Vasopressin induces vasoconstriction by acting on the V<sub>1</sub> receptor and not on the α<sub>1</sub> receptor on vascular smooth muscle cells.<sup>4</sup> These may be the reasons why vasopressin was effective in septic shock in our patient. Sepsis downregulates V<sub>2</sub> receptors and dilates afferent arterioles in the kidney.<sup>5</sup> Therefore, although vasopressin has an antidiuretic effect, a diuretic effect is sometimes observed during septic shock.<sup>6</sup> In the present case patient's urine output considerably increased after vasopressin administration.

In conclusion, vasopressin was effective in the melancholic patient of severe acute pancreatitis with catecholamine-resistant shock and should always be considered in refractory patients.

**Authors' contribution:** All of the authors took part in the management of the case and preparation of the report.

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## Announcing PAIN Reports--Open Access Journal From IASP

From: David Yarnitsky <eicpainreports@iasp-pain.org>  
 Sent: Wednesday, March 16, 2016  
 To: IASP List of recipients  
 Subject: Announcing PAIN Reports--Open Access Journal From IASP

Hello IASP Chapter Leaders—

I write to you as the first editor-in-chief of the new IASP journal, PAIN Reports. It is an open access journal that will expose its content to wide audiences, especially those in developing countries.

As we prepare to launch the journal, one of our primary aims is to foster scientific relations between IASP and its chapters. One idea is to have a special page on the journal's website dedicated to specific countries that do not have their own pain journal. This page will show every paper from each country that was published in the journal. Thus, interested readers will be able to easily access and learn about the clinical and basic research activity in the field of pain in their country.

I will be happy to hear from you if you think the idea is feasible and worthwhile. If so, I would like to work together with you to solicit article submissions from your country.

Please note: Regardless of whether PAIN Reports features a specific page for your country, we remain especially interested in publishing articles from pain researchers and clinicians in developing countries. You will see our commitment to this in the following aims and scope of the new journal:

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You can read more about the new journal on IASP's website <<http://www.iasp-pain.org/PublicationsNews/PAINReports.aspx?navItemNumber=5204>>. Please let me know if you have any questions about the new journal. You may reach me at [EICpainreports@iasp-pain.org](mailto:EICpainreports@iasp-pain.org) <<mailto:EICpainreports@iasp-pain.org>>.

I look forward to working with you.

Best regards,  
 David Yarnitsky, MD  
 Editor-in-Chief, PAIN Reports

Sent: Thursday, March 24, 2016  
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Dear All,  
 Congratulations on the inaugural issue of IASP Reports. It is in fact, a great milestone, and I hope it will be a big boost to develop research in pain management. Research in this field has been the most neglected part in the developing countries, and a lot remains to be done. We, at 'Anesthesia, Pain & Intensive Care' renew our pledge to encourage and to patronage genuine research and our editorial board is committed to go at lengths to groom new writers in this field. We offer our full support to this new venture of IASP, and hope to continue working in collaboration for the benefit of our readers and writers alike. We offer our sincere cooperation to Mr. David Yarnitsky in his new assignment.

Tariq H. Khan  
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Mar 29 at 12:21 PM  
 From: David Yarnitsky <[eicpainreports@iasp-pain.org](mailto:eicpainreports@iasp-pain.org)>  
 To: APICARE  
 Dear Tariq,  
 Thank you so much for the greetings. Wish you all the success as well  
 David