A case report on drug induced pancreatitis due to levofloxacin and methylprednisolone

Balwinder Kaur Rekhi, Srinath Reddy Mannem, H. S. Rekhi, Sushil Kumar Mittal, Sahil Arora, Sathya P., Ravitej Singh, Kaushal Seth

ABSTRACT

Introduction: Acute pancreatitis is the acute inflammation of the pancreatic gland, attributed to a wide range of etiological factors. It is a well-known fact that approximately 80% of the causes are associated with cholelithiasis and alcohol abuse. However, the exact incidence of drug induced pancreatitis is difficult to determine due to the rare presentation, it requires larger, case-controlled studies to determine its incidence and prevalence. Up to 2% cases may be caused by drug.

Case Report: This is a case report focusing on a 26-year-old female patient who developed acute pancreatitis following administration of levofloxacin and methylprednisolone for treatment of pneumonitis in intensive care unit. Both the drugs appear to be responsible for pancreatitis because of temporal relationship between the administration of drug, onset of symptoms and improvement of clinical symptoms when drugs were stopped.

Conclusion: Levofloxacin and methylprednisolone appears to be responsible for pancreatitis because of the temporal relationship between the administration of drug, onset and improvement of clinical symptoms when drugs were stopped.

International Journal of Case Reports and Images (IJCRI)

International Journal of Case Reports and Images (IJCRI) is an international, peer reviewed, monthly, open access, online journal, publishing high-quality, articles in all areas of basic medical sciences and clinical specialties.

Aim of IJCRI is to encourage the publication of new information by providing a platform for reporting of unique, unusual and rare cases which enhance understanding of disease process, its diagnosis, management and clinico-pathologic correlations.

IJCRI publishes Review Articles, Case Series, Case Reports, Case in Images, Clinical Images and Letters to Editor.

Website: www.ijcasereportsandimages.com

CASE REPORT

PEER REVIEWED | OPEN ACCESS

A case report on drug induced pancreatitis due to levofloxacin and methylprednisolone

Balwinder Kaur Rekhi, Srinath Reddy Mannem, H. S. Rekhi, Sushil Kumar Mittal, Sahil Arora, Sathya P., Ravitej Singh, Kaushal Seth

ABSTRACT

Introduction: Acute pancreatitis is the acute inflammation of the pancreatic gland, attributed to a wide range of etiological factors. It is a well-known fact that approximately 80% of the causes are associated with cholelithiasis and alcohol abuse. However, the exact incidence of drug induced pancreatitis is difficult to determine due to the rare presentation, it requires larger, case-controlled studies to determine its incidence and prevalence. Up to 2% cases may be caused by drug. **Case Report:** This is a case report focusing on a 26-year-old female patient who developed acute pancreatitis following administration of levofloxacin and methylprednisolone for treatment of pneumonitis in intensive care unit. Both the drugs appear to be responsible for pancreatitis because of temporal relationship between the administration of drug, onset of symptoms and improvement of clinical symptoms when drugs were stopped. **Conclusion:** Levofloxacin and methylprednisolone appears

to be responsible for pancreatitis because of the temporal relationship between the administration of drug, onset and improvement of clinical symptoms when drugs were stopped.

Keywords: Acute pancreatitis, Drug induced pancreatitis. Levofloxacin, Methylprednisolone

How to cite this article

Rekhi BK, Mannem SR, Rekhi HS, Mittal SK, Arora S, Sathya P, Singh R, Seth K. A case report on drug induced pancreatitis due to levofloxacin and methylprednisolone. Int J Case Rep Images 2017;8(1):62–65.

Article ID: Z01201701CR10747BR

doi:10.5348/ijcri-201708-CR-10747

Balwinder Kaur Rekhi¹, Srinath Reddy Mannem², H.S. Rekhi³, Sushil Kumar Mittal⁴, Sahil Arora⁵, Sathya P.², Ravitej Singh², Kaushal Seth²

Affiliations: ¹Associate Professor in Anaesthesia Department, Rajindra Hospital, Patiala; ²Resident in General Surgery Department, Rajindra Hospital, Patiala; ³Assistant Professor in General Surgery Department, Rajindra Hospital, Patiala; ⁴Professor in General Surgery Department, Rajindra Hospital, Patiala; ⁵Senior Resident in General Surgery Department, Rajindra Hospital, Patiala.

Corresponding Author: Dr. Srinath Reddy Mannem, Resident in General Surgery Department, ward-5, GMC and Rajindra Hospital, Patiala; Email: srinathreddy123@gmail.com

Received: 06 June 2016

Accepted: 02 August 2016

Published: 01 January 2017

INTRODUCTION

Acute pancreatitis is the acute inflammation of the pancreatic gland associated with varying involvement of the surrounding regional tissues or remote organ system. It is characterized by deep seated abdominal pain radiating to back, nausea and elevated pancreatic enzymes.

Acute pancreatitis has been attributed to a wide range of etiological factors. Approximately, 80% of the cases are associated with cholelithiasis or alcohol abuse [1]. Approximately, 1% develop pancreatitis following endoscopic retrograde cholangiopancreatography (ERCP). Several drugs are casually related to pancreatitis particularly corticosteroids, thiazide diuretics, estrogens, azathioprine, and furosemide. Furthermore, in about

10% of cases, no cause can be identified. Pancreatic toxicity of drugs is of relatively recent knowledge through the publication of isolated cases or small series. Up to 2% of cases may be caused by drugs [2].

We report a case of acute pancreatitis in a young female receiving levofloxacin and methylprednisolone.

CASE REPORT

A 26-year-old female was admitted in intensive care unit as a case of pneumonitis. She presented with history of respiratory distress, cough for seven days and with fever for three days. There is no family history of pancreatic diseases. There is neither any history of alcohol abuse nor drug abuse. On examination, respiratory rate was 30 per min, pulse 128 per min, blood pressure was 118/82 mmHg. Chest examination showed bilateral diffuse crepts and ronchi with the use of accessory muscles. SpO₂ of 92% with venturi FiO₂ 40%. After routine hematological and radiological investigations, she was diagnosed as pneumonitis and put on

- Injection ceftriaxone and sulbactam 1.5 g i.v bd
- Injection azithromycin 500 mg i.v od
- Injection omeprazole i.v od
- Nebulization with salbutamol and budesonide

The patient's general condition did not improve and further deteriorated, saturation dropped to spO₂ of 82% with oxygen and there after patient was shifted to ICU put on volume controlled mechanical ventilation and was put on

- Injection ceftriaxone and sulbactam 1.5 g i.v bd
- Injection levofloxacin 500 mg i.v od,
- Injection solumedrol 50 mg iv od.
- Injection omeprazole i.v od
- Nebulization with salbutamol and budesonide

After two days of treatment, the patient started responding to treatment, was weaned off from ventilator and put on venture mask. On the third day patient developed acute abdominal pain which is radiating to back and loose stools, for which ultrasonography was done which showed free fluid in the upper peritoneal recess and in between gut loops with left sided pleural effusion. Surgery call was sent and patient was diagnosed as a case of acute pancreatitis clinically, we advised serum amylase and lipase apart from routine investigations. Serum amylase was 346 U/L and serum lipase was 1432 U/L. Patient was advised contrast CT scan of abdomen which showed acute pancreatitis with modified CTSI of 6/10. Total leucocyte count raised from 11,600/mm³ to 20,400/mm³ on same day, the next day it increased to 52,000/mm³ and then to 70,300/mm³. The initial antibiotics were stopped and patient was put on

- injection meropenem 1 g i.v tds,
- injection metronidazole 100 ml iv tds

After three days patient responded well, serum amylase and lipase levels came back to normal range with normal ultrasonographic findings. Patient was later discharged and advised for follow-up.

DISCUSSION

Drug induced pancreatitis is relatively a less known concept in acute pancreatitis, as it is a relatively rare occurrence considering the small number of patients who develop pancreatitis compared to the large number of patients who receive potentially toxic drugs. Its incidence varies among different studies between 0.1% and 5.3% of all acute pancreatitis cases [3]. The clinical presentation and mechanisms of injury to the pancreas are not well understood and are controversial. The diagnosis of drug induced pancreatitis remains possible or probable in many patients. The resolution of pancreatitis after discontinuation of drug, could improve the diagnosis of drug induced pancreatitis. However, it is difficult to establish the direct correlation between resolution of symptoms and drug withdrawal sometimes.

Pancreatic toxicity of drugs is of relatively recent knowledge through the publication of isolated cases. According to pancréatox file prepared by the Paris Regional Centre - Saint-Antoine, the number of offending drugs reached 261, representing potentially 1–2% of acute pancreatitis [4]. More than 500 different drugs are listed in the World Health Organization (WHO) database suspected to cause acute pancreatitis as a side effect. Many of them are widely used to treat highly prevalent diseases [5].

Levofloxacin belongs to the new fluoroquinolones group. The most commonly reported adverse reactions are minor digestive disorders and elevated liver transaminases [6].

Menecier et al. [7] suggest a possible pancreatic toxicity of levofloxacin used alone or with steroids and therefore, encourages us to recommend pancreatic biological tests before the onset of abdominal pain during treatment with levofloxacin. They also stated that there is temporal relationship between the drug intake and development of acute pancreatitis as well as resolution of acute pancreatitis upon discontinuation of drugs in a short interval.

In our case, the time criteria are based on the evolving profile of acute pancreatitis according to the administration and medication discontinuation.

Re-administration of drug has not been made. The temporal relationship between drug intake and the occurrence of pancreatitis is suggestive because the time between the administration of treatment and the occurrence of acute pancreatitis is short. Upon discontinuation of treatment, resolution of acute pancreatitis is suggestive as the clinical and laboratory abnormalities decreased within hours. The problem here is, what is the offending drug? Several cases of acute pancreatitis have been reported with methylprednisolone is a well-established fact [8]. In acute pancreatitis secondary to taking methylprednisolone, the time frame is 3 days to 22 weeks with a dose-dependent mechanism assumed. The mechanism of corticosteroid-induced pancreatitis is complex and currently unknown [9]. In

a case report of Seneviratne et al. [9], the pancreatitis started after eight days of high-dose (250 mg) steroid treatment. In our patient, we started 50 mg dose of methylprednisolone. In our observation, the speed of the onset of acute pancreatitis can argue more in favor of an immunological mechanism. This suggests that the already incriminated levofloxacin in elevated pancreatic enzymes can cause acute pancreatitis. However, further observations are needed to confirm this hypothesis.

CONCLUSION

In this case reported, levofloxacin and methylprednisolone appears to be responsible for pancreatitis because of temporal relationship between the administration of drug, onset of symptoms and improvement of clinical symptoms when drugs were stopped.

Author Contributions

Balwinder Kaur Rekhi – Substantial contributions to conception and design, Acquisition of data, Drafting the article, Revising it critically for important intellectual content, Final approval of the version to be published

Srinath Reddy Mannem – Substantial contributions to conception and design, Acquisition of data, Drafting the article, Revising it critically for important intellectual content, Final approval of the version to be published

H. S. Rekhi – Substantial contributions to conception and design, Acquisition of data, Drafting the article, Revising it critically for important intellectual content, Final approval of the version to be published

Sushil Kumar Mittal – Substantial contributions to conception and design, Acquisition of data, Drafting the article, Revising it critically for important intellectual content, Final approval of the version to be published

Sahil Arora – Substantial contributions to conception and design, Acquisition of data, Drafting the article, Revising it critically for important intellectual content, Final approval of the version to be published

Sathya P. – Substantial contributions to conception and design, Acquisition of data, Drafting the article, Revising it critically for important intellectual content, Final approval of the version to be published

Ravitej Singh – Substantial contributions to conception and design, Acquisition of data, Drafting the article, Revising it critically for important intellectual content, Final approval of the version to be published

Kaushal Seth – Substantial contributions to conception and design, Acquisition of data, Drafting the article, Revising it critically for important intellectual content, Final approval of the version to be published

Guarantor

The corresponding author is the guarantor of submission.

Conflict of Interest

Authors declare no conflict of interest.

Copyright

© 2017 Balwinder Kaur Rekhi et al. This article is distributed under the terms of Creative Commons Attribution License which permits unrestricted use, distribution and reproduction in any medium provided the original author(s) and original publisher are properly credited. Please see the copyright policy on the journal website for more information.

REFERENCES

1. Spanier BW, Dijkgraaf MG, Bruno MJ. Epidemiology, aetiology and outcome of acute and chronic pancreatitis: An update. *Best Pract Res Clin Gastroenterol* 2008;22(1):45–63.
2. Lankisch PG, Dröge M, Gottesleben F. Drug induced acute pancreatitis: incidence and severity. *Gut* 1995 Oct;37(4):565–7.
3. Nitsche CJ, Jamieson N, Lerch MM, Mayerle JV. Drug induced pancreatitis. *Best Pract Res Clin Gastroenterol* 2010 Apr;24(2):143–55.
4. Biour M, Delcenserie R, Grangé JD, Weissenburger J. Drug-induced pancreatitis. First updated edition of the bibliographic database of acute pancreatitis and related drugs. [Article in French]. *Gastroenterol Clin Biol* 2001 Jan;25(1 Suppl):1S22–7.
5. Nitsche C, Maertin S, Scheiber J, Ritter CA, Lerch MM, Mayerle J. Drug-induced pancreatitis. *Curr Gastroenterol Rep* 2012 Apr;14(2):131–8.
6. Douadi Y, Lescure X, Schmit JL. A new antibiotic: levofloxacin. [Article in French]. *Presse Med* 2000 Jun 17;29(21):1184–5.
7. Mennezier D, Thiolet C, Bredin C, Potier V, Vergeau B, Farret O. Acute pancreatitis after treatment by levofloxacin and methylprednisolone. [Article in French]. *Gastroenterol Clin Biol* 2001 Oct;25(10):921–2.
8. Kimura T, Zuidema GD, Cameron JL. Steroid administration and acute pancreatitis: studies with an isolated, perfused canine pancreas. *Surgery* 1979 May;85(5):520–4.
9. Seneviratne DR, Mollan SP, Elsherbiny S, Worstmann T. Giant cell arteritis complicated by acute pancreatitis: A case report. *J Med Case Rep* 2008 Nov 17;2:346.

Access full text article on
other devices

Access PDF of article on
other devices

Edorium Journals: An introduction

Edorium Journals Team

About Edorium Journals

Edorium Journals is a publisher of high-quality, open access, international scholarly journals covering subjects in basic sciences and clinical specialties and subspecialties.

Invitation for article submission

We sincerely invite you to submit your valuable research for publication to Edorium Journals.

But why should you publish with Edorium Journals?

In less than 10 words - we give you what no one does.

Vision of being the best

We have the vision of making our journals the best and the most authoritative journals in their respective specialties. We are working towards this goal every day of every week of every month of every year.

Exceptional services

We care for you, your work and your time. Our efficient, personalized and courteous services are a testimony to this.

Editorial Review

All manuscripts submitted to Edorium Journals undergo pre-processing review, first editorial review, peer review, second editorial review and finally third editorial review.

Peer Review

All manuscripts submitted to Edorium Journals undergo anonymous, double-blind, external peer review.

Early View version

Early View version of your manuscript will be published in the journal within 72 hours of final acceptance.

Manuscript status

From submission to publication of your article you will get regular updates (minimum six times) about status of your manuscripts directly in your email.

Our Commitment

Six weeks

You will get first decision on your manuscript within six weeks (42 days) of submission. If we fail to honor this by even one day, we will publish your manuscript free of charge.*

Four weeks

After we receive page proofs, your manuscript will be published in the journal within four weeks (31 days). If we fail to honor this by even one day, we will publish your manuscript free of charge and refund you the full article publication charges you paid for your manuscript.*

Favored Author program

One email is all it takes to become our favored author. You will not only get fee waivers but also get information and insights about scholarly publishing.

Institutional Membership program

Join our Institutional Memberships program and help scholars from your institute make their research accessible to all and save thousands of dollars in fees make their research accessible to all.

Our presence

We have some of the best designed publication formats. Our websites are very user friendly and enable you to do your work very easily with no hassle.

Something more...

We request you to have a look at our website to know more about us and our services.

* Terms and condition apply. Please see Edorium Journals website for more information.

We welcome you to interact with us, share with us, join us and of course publish with us.

Edorium Journals: On Web

Browse Journals

CONNECT WITH US