CASE REPORT

Hepatotoxicity associated with the ingestion of Papaver Rhoease

Hayriye Gonullu,[1] Sevdegul Karadas,[2] Ahmet Cumhur Dulger,[3] Senar Ebinc[4]

Abstract

Liver injury appears to be associated with the use of herbal products and wild plants. This paper presents what is to our knowledge the first case report in the world of acute liver toxicity caused by Papaver Rhoease. A 17-year-old woman from eastern Turkey ingested Papaver Rhoease which is known as "poppy flower" among the local inhabitants. Her liver function tests were initially 10-15 fold higher than normal. She was hospitalised in intensive care unit and on day 2 of hospitalisation, the results of her liver function tests showed about a hundred-fold increase compared to the normal level. Her general status deteriorated and she was transferred to another medical centre for liver transplantation.

Keywords: Hepatotoxicity, Papaver Rhoease.

Introduction

Acute liver failure (ALF) is an uncommon but critical disorder that causes jaundice, coagulopathy, and multiorgan failure.[1] In recent studies in the United States most cases of ALF resulted from acetaminophen overdose, idiosyncratic drug reactions and viral hepatitis.[1] A general approach to the treatment of these patients begins with determining the reason for the organ failure, evaluating the prognosis with laboratory tests and encephalopathy, and then referral to a liver transplantation unit.[1]

Traditionally, herbal products are considered to be gentle, non-toxic owing to their natural origin.[2] Alternative treatment methods have certain clinical advantages.but sometimes they may have severe adverse effects. Since herbal products and many plants are commonly used in the treatment of various illnesses around the world, adverse effects such as hepatotoxicity, hepatorenal syndrome or death are observed.[3]

The poppy flower is a plant traditionally used as a treatment for coughs, gastric ulcer and minor sleep disorders.[4,5] Also, in eastern Turkey, the seed from the poppy flower are ingested as food by people. With the present case report, we emphasise that various wild plants such as the poppy flower can lead to toxic hepatitis.

Case Report

A 17-year-old woman was admitted to the emergency department (ED) of Yuzuncu Yil University, School of Medicine, Van, Turkey, in June 2013, complaining of nausea, vomiting and abdominal tenderness. Two days earlier, two-three hours after ingesting the seeds of a plant known as "poppy flower", she had been admitted to another hospital with similar complaints. She had ingested the poppy flower seeds in order to treat lingering cough. She was transferred from that hospital to our centre because the results of her liver function test (LFT) were high. Her history was unremarkable. There was no alcohol consumption, family history of liver disease, use of herbal drugs and any other weed except for poppy flower. Besides, she didn't use any medical drug. On admission to our ED, her vital signs were tension arterial (TA) of 100/60 mmHg; heart beat (HB) of 90 beats/min; body temperature of 36°C. Her physical examination was normal apart from abdominal tenderness upon palpation and vaginal bleeding. Her initial laboratory parameters

Table: Laboratory parameters.

	Firstday	Second day	Normal range
Leucocyte (mm^3)	46800	38500	4000-10000
Haematocrit %	28	30	33-55
Platelet (mm^3)	138000	132000	150000-400000
BUN[1] (mg/dl)	37,3	37	6-20
Creatine (mg/dl)	1.32	1.34	0.7-1.3
AST[2] (U/L)	539	3874	0-31
ALT[3] (U/L)	1001	2995	0-41
aPTT[3] sec	47.9	33.6	26.5-40
PTZ[5] sec	24.8	20.8	12-14
INR	2.34	1.86	0.5-1.5
Serum bicarbonate(meq/L)	20	19	22-26
Serum pH	7.36	7.35	7.35-7.45
Serum total bilirubin(mg/dl)	2.2	3.1	0-1
Serum direct bilirubin (mg/dl)	0.5	1.05	0-0.2
Factor V (%)		11	70-120
Factor VIII (%)		40	60-150

[1]Blood ureanitrogen, [2]Aspartate aminotransferase, [3]Alanine aminotransferase, [4]Partial thromboplastin time, [5]Prothrombin time.
INR: international normalised ratio.

[1,2]Department of Emergency Medicine, [3,4]Department of Gastroenterology, Yuzuncu Yil University, School of Medicine, Van, Turkey.
Correspondence: Hayriye Gonullu. Email: drhayriyegonullu@gmail.com

were taken down (Table). Urine and blood toxicology were not investigated owing to technical limitations. But hepatitis A, B, C and other viral serology tests (cytomegalovirus, Epstein-Barr, herpes simplex and human immunodeficiency syndrome) were negative. Thus, we thought of hepatotoxicity due to "poppy flower" together with clinical status, history of patient and laboratory findings. The patient was hospitalised in the intensive care unit (ICU) and symptomatic therapy, fluid resuscitation, N-acetyl cysteine infusion, fresh frozen plasma were commenced. On the second day in ICU, the woman's general status was moderate-poor, and consciousness was confused. Her vital signs were normal, but laboratory results gave cause for concern. Due to the increased level of her liver function, bilirubin levels and low factor V level, she was transferred to another centre with experience of liver transplantation. The follow-up of the patient was performed via telephone and it was found that she was recovering and did not need liver transplantation. At a 2-week follow-up the patient's liver enzymes were within the normal range (Aspartate aminotransferase [AST], 28 IU/L; Alanine transaminase [ALT], 25 IU/L).

Discussion

To our knowledge, there is no case report in literature on ALF resulting from the ingestion of PapaverRhoease. Thus, we reported the case of a woman who presented with ALF due to PapaverRhoease, also known as the poppy flower among local people.

Adukauskiene et al., reported the causes of ALF to include viral hepatitis B, drug-induced liver injury, and indeterminate hepatitis.[6] Various drugs and many commercially available substances such as herbal products and dietary supplements may be responsible for acute toxic hepatitis.[7-9] Drug-induced liver failure most frequently results from the use of paracetamol, antibiotics, anti-epileptics and anti-tuberculous medication.[6]

For a long time plants have played a very important role in human life. Today, the use of plants as a treatment for ailments is very common.[10] It is known that PapaverRhoease has been used to improve intestinal and urinary irritation and to be beneficial in respiratory diseases such as bronchitis and pneumonia.[4] Also, in Turkey, some people use the seeds of this plant because it has anti-ulcerogenic effects.[5] In our study, the young female had taken the seed of the poppy flower to treat a cough.

The diagnosis of hepatotoxicity due to the ingestion of wild plants depends on a proper knowledge of the available literature on hepatotoxicity; early diagnosis and appropriate treatment can save lives. The severity of ALF is described as less than 50% of factor V level.[7] In these patients, a detailed neurological examination must be undertaken to check for signs of encephalopathy. Cases with ALF should be transferred to a liver transplantation centre.[7] The patient in our study had a factor V level of 11% and on the second day ICU, hepatic encephalopathy developed and she was referred to a liver transplantation unit.

Conclusion

Traditional medicinal plants seem to play an important role in the world. However, these alternative treatment methods may cause severe adverse effects such as hepatotoxicity and even death. Hepatotoxicity due to wild plants should be considered in the diagnostic work-up of liver injury.

References

1. Khashab M, Tector AJ, Kwo PY. Epidemiology of acute liver failure. Curr Gastroenterol Rep 2007; 9: 66-73.
2. Deng JF. Clinical and laboratory investigations in herbal poisonings. Toxicology 2002; 181-182: 571-6.
3. Polat M, Oztas P, Yalcin B, Tamer E, Gur G, Alli N. Contact dermatitis due to Allivumsativum and Ranunculusillyricus: two cases. Contact Dermatitis 2007; 57: 279-80.
4. Soulimani R, Younos C, Jarmouni-Idrissi S, Bousta D, Khallouki F, Laila A. Behavioral and pharmaco-toxicologicalstudy of Papaverrhoeas L. in mice. J Ethnopharmacol 2001; 74: 265-74.
5. Gürbüz I, Ustün O, Yesilada E, Sezik E, Kutsal O. Anti-ulcerogenic activity of some plants used as folk remedy in Turkey. J Ethnopharmacol 2003; 88: 93-7.
6. Adukauskiene D, Dockiene I, Naginiene R, Kevelaitis E, Pundzius J, Kupcinskas L. Acuteliver failure in Lithuania. Medicina (Kaunas) 2008; 44: 536-40.
7. Amathieu R, Levesque E, Merle JC, Chemit M, Costentin C, Compagnon P, et al. Severe toxic acute liver failure: etiology and treatment. Ann Fr Anesth Reanim. 2013; 32: 416-21.
8. Jóhannsson M, Ormarsdóttir S, Olafsson S. Hepatotoxicity associated with the use of Herbalife. Laeknabladid 2010; 96: 167-72.
9. Stickel F, Kessebohm K, Weimann R, Seitz HK. Review of liver injury associated with dietary supplements. Liver Int 2011; 31: 595-605.
10. Kültür S. Medicinal plants used in Kirklareli Province (Turkey). J Ethnopharmacol 2007; 111: 341-4.