



Diagnosis and Treatment of 100 Cases of Liver Poisoning

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Abstract: Objective — To analyze the diagnosis and treatment of hallucinogenic mushroom poisoning and provide evidence for the early diagnosis and treatment of mushroom poisoning. Methods — 100 patients included from May 2017 to April 2021 were analyzed, monitored the relevant laboratory indicators, counted the impaired organ function, and analyzed the efficacy of relevant treatment programs. Results — Among 100 patients with liver poisoning, in 11 cases of gastrointestinal poisoning, for 11.00%, disease course (5.32 ± 3.12) h; in 89 cases, neuropsychiatric poisoning occurred, for 89.00%, disease course (2.05 ± 0.61) h, among them, the neuropsychiatric poisoning patients accounted for the highest proportion, patients with gastrointestinal type have a long disease duration. Of the 100 patients with BHF poisoning, in 7 cases of nausea and vomiting, for 7.00%; in two cases of abdominal pain, for 2.00%; one case of severe diarrhea, for 1.00%; one case of gastrointestinal bleeding, for 3.00%; in 12 cases, for 12.00%; tears in 5 cases, for 5.00%; in 32 cases, for 32.00%; slow pulse in 13 cases, for 13.00%. Vision — 74 cases, Accounting for 74.00%. There were no abnormal changes in liver and kidney function indicators (ALT, AST, A S T, BUN, SCr, CK, CK-MB, LDH, WBC, Tbil, PTA, and Dbil) in 100 patients with vine liver bacteria intoxication, and no significant difference was found before and after treatment ($P > 0.05$). All the 100 patients with bovine liver bacteria poisoning recovered and were discharged after relevant treatment measures, with a cure rate of 100%, among which the neuropsychiatric hospital stay time was shorter than the gastrointestinal type ($P < 0.05$). Will 100 poisoning patients according to the severity of mild group (mild, moderate) 78 cases, severe group 22 cases, the influence of both groups, mild group age, hypertension, diabetes, hyperlipidemia, high homocysteinemia are significantly lower than the severe group ($P < 0.05$). Conclusion — most patients with neuropsychiatric damage, after taking timely treatment measures, the cure rate is quite large, including the toxic prognosis is affected by the factors such as age, basic disease history, with basic diseases of elderly poisoning groups need to pay special attention, when necessary, such as blood perfusion to ensure the cure rate.

Keywords: mushroom, cow liver bacteria, poisoning, early diagnosis and treatment

Mushroom, commonly known as mushroom, is a class of higher fungi[1]. With a very high edible value, some can also be medicinal, a wide variety of mushrooms, people lack the experience of identifying toxic and non-toxic mushrooms, accidentally eating poisonous mushrooms can cause poisoning[2]. Bovine liver bacteria also known as hand green, for bovine liver bacteria and Pine tower bovine liver bacteria Family and other fungi collectively, a few varieties of them are toxic, such as red, green cow liver bacteria, can not distinguish the clear and wrong food can cause poisoning[3]. According to the clinical manifestations of muscarinic poisoning, the clinical practice is roughly divided into four types. Gastrointestinal type: nausea and vomiting, abdominal pain and diarrhea, severe cases can be accompanied by gastrointestinal bleeding, secondary dehydration, blood pressure drop and even shock[4]. Neuropsychiatric type: with toxic liver damage as a prominent clinical manifestation, vision, delusion, convulsive convulsions, respiratory depression and other manifestations. Some poisoned patients can have peripheral neuritis performance. Hemolysis: except for gastrointestinal symptoms, there are hemolytic anemia, jaundice, hemoglobinuria, hepatosplenomegaly. Severe cases can cause acute renal failure, and some cases of thrombocytopenia and even hematemesis and stool; Poisulent hepatitis: toxic liver damage as prominent clinical manifestations, hepatomegaly, jaundice, and elevated transaminase. In severe cases, accompanied with systemic bleeding tendency, often complicated with DIC, hepatic encephalopathy, toxic myocarditis, toxic encephalopathy, or renal damage can also occur, leading to varying degrees of dysfunction in related organs[5,6]. Muscarpoisoning is extremely harmful, and the correct early resolution and diagnosis and treatment methods are particularly important for the cure of patients. In this study, 100 patients with bovine liver bacteria poisoning were used to analyze the diagnosis and treatment of mushroom poisoning and provide evidence for the early diagnosis and treatment of mushroom poisoning.

1. Data and methods

1.1 General information

A retrospective statistical analysis was performed on 100 poisoning patients included in our hospital between May 2017 and April 2021. All the patients had a history of edible muscarinides before admission, and they were poisoning of edible cow liver fungus (Lanmao cow liver fungus), and the same eaters had poisoning manifestations of different conditions. We excluded other patients with food poisoning category. This study has been approved by the Ethics Committee.

1.2 Methods

(1) Treatment method: all poisoned patients receive routine rehydration, gastric lavage, diarrhea (compound polyethylene, mannitol, toner), routine blood, coagulation dynamic monitoring, gastrointestinal electrolyte and acid-base balance and atropine intravenous infusion; sedative (olanzapine), and severe patients receive blood perfusion.

(2) Laboratory index testing: all patients took 3mL of venous blood at admission and completion of treatment, and were centrifuged for cryopreservation for testing. The testing items include blood routine (red blood cells, white blood cells, hemoglobin, etc.), routine stool examination, heart, liver function, liver and kidney function examination (creatinine, urea nitrogen, creatine kinase, etc.).

1.3 Observation indicators

(1) Classification of the clinical manifestations of the 100 poisoned patients, Both gastrointestinal and neuropsychiatric types, Performance signs include nausea and vomiting, abdominal pain, severe diarrhea, gastrointestinal bleeding, sweat and salivation, tears, pupil narrowing, slow pulse, vision, etc.; (2) Changes of liver and kidney function indicators in 100 poisoned patients, Including alanine aminotransferase (Alanine aminotransferase, ALT), white blood cell count (White blood cell count, WBC), aspartate aminotransferase (Aspartate aminotransferase, AST), total bilirubin (Total bilirubin, Tbil), albumin (Albumin, Alb), prothrombin activity (Prothrombin activity, PTA), BUN (Urea nitrogen, BUN), blood creatinine (Serum creatinine, SCr), creatine kinase (Creatine kinase, CK), creatine kinase isozymes (Creatine kinase isoenzyme MB, CK-MB), lactate dehydrogenase (Lactate dehydrogenase, LDH), direct bilirubin (Direct bilirubin, Dbil), et al.; (3) Statistics of the prognosis of 100 poisoned patients after treatment, It includes cure and discharge and death.(4) Univariate analysis of the influence of 100 poisoned patients; (5) Multivariate analysis of 100 liver poisoned patients.

1.4 Statistical methods

All data were analyzed using SPSS 21.0 statistical software, where count data were expressed as percentage "%" by four-group comparison2falseTest, meet the normal distribution of measurement data are using mean \pm standard deviation (), compare between the two measurement data using t-test, compare between measurement data using F test, does not meet the normal distribution using the median and quartiles, measurement data comparison using rank and Z test, remember $P < 0.05$ for statistically significant difference.

2. Results

2.1 Classification of the clinical manifestations of the 1,100 poisoned patients

Of the 100 patients with BHF poisoning, in 11 cases of gastrointestinal poisoning, for 11.00%, disease course (5.32 ± 3.12) h. In 89 cases, neuropsychiatric poisoning occurred, for 89.00%, disease course (2.05 ± 0.61) h. Among them, the neuropsychiatric poisoning patients accounted for the highest proportion. Patients with gastrointestinal type have a long disease duration. Of the 100 patients with BHF poisoning, in 7 cases of nausea and vomiting, for 7.00%, in two cases of abdominal pain; for 2.00%, one case of severe diarrhea; for 1.00%, one case of gastrointestinal bleeding; for 3.00%, in 12 cases; for 12.00%, tears in 5 cases; for 5.00%, in 32 cases; for 32.00%, slow pulse in 13 cases; for 13.00%, vision: 74 cases, accounting for 74.00%. As shown in Table 1.

Table 1. Classification of clinical manifestations of 100 poisoned patients

clinical classification	Example number (example)	proportion (%)	course of disease (h)	Performance characteristics [Example (%)]
Gastrointestinal type	11	11.00	5.32 \pm 3.12	Nausea and vomiting in 7 cases (7.00), abdominal pain in 2 cases (2.00), severe diarrhea in 1 case (1.00), gastrointestinal bleeding in 1 case (1.00)
Neuropsychiatric	89	89.00	2.05 \pm 0.61	Hyperhidrosis 12 cases (12.00), tears 5 cases (5.00), pupil narrowing 32 cases (32.00), slow pulse 13 cases (13.00), vision 74 cases (74.00)

2.2 Changes of liver and kidney function indicators in 100 poisoned patients

There were no abnormal changes in liver and kidney function indicators (ALT, AST, A S T, BUN, SCr, CK, CK, C K-MB, LDH, WBC, Tbil, PTA, Dbil), and no significant difference between before and after treatment ($P > 0.05$), as shown in Table 2.

Table 2. Changes in liver and kidney function indicators in 100 poisoned patients

time	ALT (U/L)	WBC (*10 ⁹ /L)	AST (U/L)	Tbil (μmol/L)
Before treatment (n=100)	269.14±86.32	8.39±2.81	.00357 (176.00,475)	.3382 (26.08,122)
After the treatment (n=100)	268.15±88.16	8.61±2.90	353.00 (182.00,461.00)	81.14 (27.33,119.08)
t /χ ²	0.080	0.544	1.127	1.405
P	0.936	0.586	0.906	0.882
time	Alb (g/L)	PTA (%)	BUN (mmol/L)	SCr (μmol/L)
Before treatment (n=100)	33.17±4.91	72.04±18.33	5.70±2.11	66.19±15.52
After the treatment (n=100)	34.05±5.10	71.93±19.30	5.83±2.06	67.91±16.30
t /χ ²	1.243	0.041	0.440	0.764
P	0.215	0.967	0.659	0.445
time	CK (U/L)	CK-MB (U/L)	LDH (μmol /s/L)	Dbil (μmol/L)
Before treatment (n=100)	108.07±22.14	25.15±9.25	3.46±0.93	36.96±8.93
After the treatment (n=100)	105.17±21.34	24.08±9.03	3.63±0.96	38.04±9.05
t /χ ²	0.943	0.827	1.271	0.849
P	0.346	0.408	0.204	0.396

2.3 Statistics of the prognosis of 100 poisoned patients after treatment

All the 100 patients with bovine liver bacteria poisoning recovered and were discharged after relevant treatment measures, and the cure rate was 100%, among which the neuropsychiatric hospitalization time was shorter than the gastrointestinal type ($P < 0.05$). As shown in Table 3.

Table 3. Statistics of the prognosis of 100 poisoned patients after treatment

clinical classification	recure	die	Discharge time
Gastrointestinal type	11 (100.00)	0	5.16±1.82
Neuropsychiatric	89 (100.00)	0	3.86±1.26
F /χ ²		134.240	
P		0.000	

2.4 Univariate analysis of the influence of 100 poisoned patients

Will 100 poisoning patients according to the severity into mild group (mild, moderate) 78 cases, severe group 22 cases, the influence of both groups, mild group age, hypertension, diabetes, hyperlipidemia, high homocysteinemia are significantly lower than the severe group ($P < 0.05$). As shown in Table 4.

Table 4. Univariate analysis of the disease influence of 100 poisoned patients

factor		Mild group (n=78)	Severe group (n=22)	t /χ ²	P
Gender (male / female)		27/51	7/15	0.059	0.807
Age (year)		31.08±7.26	56.13±6.33	14.675	0.000
History of hypertension (example)	have	5 (6.41)	13 (59.09)	28.794	0.000
	not have	73 (93.58)	9 (40.90)		
History of diabetes mellitus (example)	have	4 (5.12)	11 (50.00)	23.694	0.000
	not have	74 (94.87)	11 (50.00)		
History of hyperlipidemia (example)	have	5 (6.41)	9 (40.90)	14.218	0.000
	not have	73 (93.58)	13 (59.09)		
History of hyperhomocysteinemia (example)	have	3 (3.84)	5 (22.72)	5.944	0.014
	not have	75 (96.15)	17 (77.27)		

2.5 Multivariate analysis of the influence of patients with BHF poisoning

In the multivariate analysis, age, hypertension, diabetes, hyperlipidemia and history of hyperhomocysteinemia were all independent risk factors for the disease of patients ($P < 0.05$).

3. Discussion

Beef liver fungus as a nutrition-rich food, widely used in the production process of dishes, most beef liver bacteria are non-toxic fungi, but there are also some toxic bacteria, such as red, green beef liver bacteria, if improper treatment and use can cause poisoning[8]. Liver bacteria can cause poisoning mainly because it contains a variety of toxins and heavy metals, the main toxin goose peptide toxins, fly, light, plum blossom toxin on poisoning performance, some patients can appear nausea, vomiting, abdominal pain, diarrhea and gastroenteritis related symptoms, most patients can appear nervous system damage, such as dizziness, headache, hallucinations, vision, vision, delusion, coma, convulsions, and even by breathing, circulation center suppressed, lead to breathing rhythm instability, respiratory inhibition, arrhythmia, etc., eventually can even lead to the death of patients[9-11].

The results of this study showed that among 100 patients with BHF poisoning, only 11 cases had gastrointestinal poisoning; for 11.00%, disease course (5.32 ± 3.12) h, in 89 cases, neuropsychiatric poisoning; for 89.00%, disease course (2.05 ± 0.61) h. Among them, the neuropsychiatric poisoning patients accounted for the highest proportion; patients with gastrointestinal type have a long disease duration. Of the 100 patients with BHF poisoning, in 7 cases of nausea and vomiting; for 7.00%, in 2 cases of abdominal pain; for 2.00%, one case of severe diarrhea; for 1.00%, in 1 case of gastrointestinal bleeding; for 3.00%, in 12 cases; for 12.00%, tears in 5 cases; for 5.00%, in 32 cases; for 32.00%, slow pulse in 13 cases; for 13.00%, vision: 74 cases, accounting for 74.00%. Among them, the neuropsychiatric patients (salivation, hallucinations, delusion, etc.) are the most common, and the analysis is related to the characteristics of the pathogenic neurotoxin, in a series of gastric lavage, rehydration, diarrhea and other operations can accelerate the excretion of toxins and maintain the balance of water and electrolyte[12]. At the same time, the use of olanzapine, midazolam and other sedatives to inject patients, can effectively reduce the degree of various symptoms of patients, for gastrointestinal patients, using atropine infusion, atropine can treat the muscarinic symptoms shown by organophosphorus pesticide poisoning[13]. It can reduce the adverse reactions caused by gastrointestinal toxins in patients.

The results of the liver and kidney laboratory indicators showed 100 cases of liver and kidney function indicators (ALT, AST, BUN, SCr, CK, CK B-MB, LDH, WBC, T bil, PTA, Dbil), before and after treatment there is no significant difference, and poisoning patients with liver and kidney function damage, and historical research[14]consistent. Compared with other kinds of muscarides, bovine liver bacteria poisoning has mild symptoms and better prognosis, so it should be distinguished from the patients with other types of poisoning and develop the correct treatment plan before taking the treatment. The statistical results of the treatment prognosis of the patients in this study show that 100 patients with cow liver bacteria poisoning were recovered and discharged after relevant treatment measures, and the cure rate was 100%, among which the neuropsychiatric hospitalization time was shorter than the gastrointestinal type, which can also prove the above conclusion. In this study, according to the severity of the disease, the patients were divided into mild (mild, moderate) and severe groups, and the results of age, hypertension, diabetes, hyperlipidemia and high homocysteinemia were significantly lower than the severe group, and the multivariate analysis showed that age and chronic underlying diseases are independent risk factors affecting the development of the disease. Compared with the younger group, the elderly group will decline, especially the digestive and metabolic function and circulatory function. At the same time, the probability of having chronic diseases is also greater, and these factors will often have a greater impact on the prognosis of patients[15]. For such patients, the observation should be emphasized after their admission. If the condition is more serious, blood purification and other measures should be taken in time to stabilize the condition.

To sum up, most cattle liver fungus poisoning patients for neuropsychiatric damage, after taking timely treatment measures, the cure rate is considerable, including toxic disease prognosis by age, basic disease history and other factors, with basic diseases of elderly poisoning groups need to pay special attention, when necessary, take operations such as blood perfusion to ensure the cure rate.

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