



Fish borne acute renal failure

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ABSTRACT

Acute renal failure is an important acute renal disease. It is the totally acute impairment of the renal function and can be fatal if there is no proper and timely treatment. There are various causes of acute renal failure. The acute renal failure might be due to contact with nephrotoxic substance. The food borne acute renal failure is an important problem that is sporadically seen worldwide. Of several food borne acute renal failure disorders, the fish borne acute renal failure is an important problem. In this specific short review, the authors summarize and discuss the cases on important fish borne acute renal failure disorders.

1. Introduction

Kidney is the important organ in human body functions for excretion and renal failure is a common nephrological disorder in medicine. Acute renal failure is an important acute renal disease. It is the totally acute impairment of the renal function and can be fatal if there is no proper and timely treatment. Often, the dialysis therapy is required. If there is no good treatment, the fatality or turning to chronic renal impairment can be expected. Naqvi reported that “renal replacement therapy was required in 96% of patients. Complete recovery was seen in 72.28% patients, 20% died during acute phase of illness[1].”

There are various causes of acute renal failure. The acute renal failure might be due to contact with nephrotoxic substance. The

toxic substance might be derived by ingestion, injection, direct contact etc. For direct ingestion, the nephrotoxic substance might exist in food or drug. In the case of nephrotoxic food contact, the food might be toxic by itself or there is a nephrotoxic contaminant. The food borne acute renal failure is an important problem that is sporadically seen worldwide. Of several food borne acute renal failure disorders, the fish borne acute renal failure is a serious problem. In this specific short review, the authors summarize and discuss the cases on important fish borne acute renal failure disorders from several aspects.

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2. Fish gall bladder poisoning and renal failure

Fish gall bladder is sometimes intake and cause problem. The acute toxicity due to intake includes watery stool, generalized abdominal pain, repeated vomiting, and decreased urine output[2]. Acute renal failure due to fish gall bladder ingestion is sporadically reported in many Asian countries. Sovann reported that “the condition is commonly reversible, and therefore proper history taking is important and prompt biochemical investigations including blood urea and creatinine are needed to enable early diagnosis and fast institution of treatment, which may include hemodialysis[3].” Pandey *et al.* noted “the risk of acute kidney failure and even multiple organ dysfunction syndrome following ingestion of fish gall bladder[4].” Sometimes, the outbreak due to common food intake of fish gall bladder is also reported[5]. In addition to food, the fish gall bladder is sometimes also used as a part of herbal regimen (such as in Chinese herbal regimen) and this can cause the acute renal failure problem[3]. The renal dialysis and conservation treatment is usually required for case management[6].

3. Carp fish ingestion and acute renal failure

Grass carp (*Ctenopharyngodon idellus*) is a common fish in Asia. The ingestion of carp gall bladder can induce acute renal failure. The intake of the raw fish gall bladder is usually the common history. The affected case also has acute hepatitis[7,8]. The problem can be seen in many developing countries in Asia, especially for India. Nevertheless, the cases are also reported in developed country such as Japan[9]. In general, the clinical problem usually occurs with 10 min-18 h after the ingestion of the carp[10]. The identified renal pathology is usually an acute tubular necrosis[10]. The recommended treatment is hemodialysis. The complete recovery can be derived if there is a good prompt case management[10]. The duration of treatment can be up to 1 month[11]. From an in-depth analysis of the poisoning cases, Gupta *et al.* reported “the structure of carptoxin to be 5 α -cyprinol sulfate (5 α -cholestane-3 α , 7 α , 12 α , 26, 27-pentol 26-sulfate)[12].”

4. Other fishes ingestion and acute renal failure

There is an interesting case report on intoxication due to intake of cow fish (*Lactoria diaphana*)[13]. In that case[13], rhabdomyolysis was observed and acute renal failure occurred. The patient ended up with death[13]. Shinzato *et al.* noted that “the case has the characteristic clinical course of palytoxin poisoning, which has also been reported as blue humphead parrotfish poisoning from other kinds of fish[13].”

For the humphead parrotfish poisoning, Okano *et al.* reported that the common clinical problem included the rhabdomyolysis which could further induce acute renal failure as well as heart problem[14].

5. Conclusion

Fish borne disease is a common problem. Acute renal failure due to intake of fish has been reported worldwide and it is an important problem that should not be forgotten. Therefore, health education to the local people on this possible health problem is extremely needed.

Conflict of interest statement

The authors report no conflict of interest.

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