

Intramuscular Lorazepam in Catatonia in Patients with Acute Renal Failure: A Report of Two Cases

Chao-En Huang, MD; Tiao-Lai Huang¹, MD

Cases of catatonia in patients with renal failure have been rarely reported. In this report, we describe two renal-insufficient patients with catatonia who had a good response to intramuscular lorazepam whereby the catatonic symptoms were relieved. Case 1 involved a patient with end-stage renal disease and severe pneumonia related respiratory failure. He responded well to intramuscular lorazepam (total dose, 4 mg) whereby the catatonia was relieved. Case 2 involved a patient with alcoholic liver cirrhosis and rhabdomyolysis-related acute renal failure. He showed great improvement with intramuscular lorazepam (2 mg) whereby the catatonia was subsequently relieved. This report demonstrates that intramuscular lorazepam is safe, effective and rapid in relieving catatonia associated with renal function impairment. Neither of the patients had a recurrence of catatonia during a period of 6-months follow-up. In conclusion, intramuscular lorazepam may play an important role in the treatment of catatonia associated with renal insufficiency. (*Chang Gung Med J* 2010;33:106-9)

Key words: lorazepam, catatonia, renal failure

INTRODUCTION

In the 4th edition of Diagnostic and Statistical Manual of Mental Disorders (DSM-IV) criteria, catatonia is characterized by stupor, excitement, negativism, mutism and catalepsy, together with rigidity and waxy flexibility.⁽¹⁾ Catatonia can be caused by a variety of metabolic, neurological, psychiatric, toxic and medical conditions.⁽²⁻⁵⁾ Previous studies revealed that catatonia could be from low gamma-aminobutyric acid (GABA)-A receptor binding, dopamine hypoactivity and glutamate hyperactivity hypothesis.^(6,7) However, the true mechanisms for organic catatonia are rarely discussed and conclusions remain inconsistent. It is widely known that the severity score of catatonia can be calculated by the Bush-Francis Catatonia Rating Scale (BFCRS).⁽⁸⁾ The BFCRS measures the severity of 23 signs on a 0-3 scale and the reliability and validity are been established.

Many studies have shown that benzodiazepines are effective for treating catatonic symptoms.⁽⁹⁻¹¹⁾ Huang and colleagues reported that a modified treatment strategy with benzodiazepines could rapidly and completely relieve catatonic symptoms in patients with schizophrenia,⁽¹²⁾ major depression,⁽¹³⁾ systemic lupus erythematosus (SLE)⁽¹⁴⁾ and multiple sclerosis (MS).⁽¹⁵⁾ However, the true mechanisms for catatonia associated with SLE and MS remain unknown.

Renal function deterioration is related to multiple systemic disorders including fluid, electrolyte, hormonal imbalance and metabolic abnormalities. However, there are rare cases of catatonia being described in renal function impairment. There have not been any papers mentioning the use of intramuscular lorazepam to relieve catatonia in patients with renal insufficiency.

Here, we describe two patients with renal func-

From the Department of Internal Medicine, E-DA Hospital, Kaohsiung, Taiwan; ¹Department of Psychiatry, Chang Gung Memorial Hospital-Kaohsiung Medical Center, Chang Gung University College of Medicine, Kaohsiung, Taiwan.

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Correspondence to: Dr. Tiao-Lai Huang, MD, Department of Psychiatry, Chang Gung Memorial Hospital – Kaohsiung Medical Center, 123, Dapi Rd., Niasong Township, Kaohsiung County 833, Taiwan (R.O.C.) Tel.: 886-7-7317123 ext. 8752;

Fax: 886-7-7326817; E-mail: a540520@cgmh.org.tw

tion-impairment associated catatonia who had a good response to intramuscular lorazepam in relieving catatonic symptoms and discuss the role of benzodiazepines on the treatment of organic catatonia.

CASE REPORT

CASE 1

A 58 year-old male was diagnosed with end-stage renal disease with maintained hemodialysis for 5 years. He was admitted to medical intensive care unit (ICU) because of high fever and severe right lobar pneumonia progressing to respiratory failure. Sputum culture revealed a *Pseudomonas aeruginosa* infection. The pneumonia was relieved after carbapenem was prescribed (Imipenem 500 mg Q6h for 9 days) and he was successfully weaned from the ventilator. However, he presented mutism, stupor, negativism and hypoactivity several days after being weaned from the ventilator. Brain computerized tomography (CT) was performed which showed negative findings. Elevated serum levels of potassium (6.1 mg/dL) and creatinine (9.3 mg/dL) were noted without other electrolyte imbalance. However, the symptoms persisted even after regular hemodialysis.

As a result of the persisting symptoms a psychiatrist was consulted and a diagnosis of catatonia was made. Over a period of 4 hours, the patient partially responded to intramuscular lorazepam (2 mg). He responded to his name and could nod to in agreement or disagreement of instructions. 2 mg Lorazepam was administered by intramuscular injection (in total 4 mg) and there was a complete remission of catatonia. The patient could then respond to further instructions coherently and appropriately. The BFCRS score had changed from 14 points at baseline to 0 points at endpoint after the treatment with intramuscular lorazepam.

In addition, he complained of palpitations and shortness of breath during regular hemodialysis. An electrocardiogram was done which showed normal sinus tachycardia with a tent T wave. Elevated serum levels of creatinine (14.1 mg/dL) and potassium (9.0 mg/dL) was noted. Arterio-venous fistula recirculation was impressed, resulting in the insertion of a double lumen catheter for hemodialysis. The sensation of palpitations and dyspnea subsided and the serum levels of creatinine and potassium were well under control. The patient had no recurrence of catatonia during the 6-months of follow-up.

CASE 2

A 50 year-old male patient was diagnosed with alcoholic liver cirrhosis, diabetes mellitus and hypertension. He had not been treated by medical regimes for an extend period of time. He presented with delirium, autism, hypoactivity and stupor for one week after drinking alcohol and could not ingest liquids including water and other medication. He was subsequently hospitalized for a high fever of up to 39.5°C.

In the emergency room, the patient presented mutism and hypoactivity, and could not respond to instruction or stimulation. The Glasgow Coma Scale score was E4V1M1. Abnormal serum levels of creatinine (4.1 mg/dL), blood urine nitrate (40 mg/dL), myoglobin (220658 ug/L) and creatinine kinase (67554 units/L) were noted. Brain CT, urine routine examination and chest roentgenogram all showed negative findings.

A diagnosis of rhabdomyolysis and fever was reached due to the indicators alcohol intake and severe dehydration. Acute renal failure then occurred as a complication of rhabdomyolysis. A psychiatrist was consulted to investigate the symptoms of mutism and waxy flexibility. The diagnosis of catatonia was made and the psychiatrist suggested intramuscular lorazepam 1 amp (2 mg) to relieve the symptoms. The patient completely recovered from catatonia in one hour and could respond to instructions orders. The BFCRS score had changed from 13 points at baseline to 0 points at endpoint after the treatment with intramuscular lorazepam. Catatonia did not recur again in 6-month follow-up.

DISCUSSION

Within an ICU, many patients present with complex and multiple systemic problems and are often unconscious or in a stupor. Most of these conditions are regarded as organic encephalopathy or recurrent strokes.

It is difficult to diagnose catatonia within the confines of an ICU for reasons believed that most interns are not familiar with the clinical presentation of catatonia. Prolonged catatonia can be a source of extremely serious morbidity and mortality. It is important for physicians to accurately identify and diagnose catatonia and furthermore to resolve the problem as soon as possible. The first patient presented with sensations of palpitations and shortness of breath after the catatonia was relieved. A diagnosis

of hyperkalemia and arrhythmia eventuated because of the timely information. If the problems were not managed within a suitable timeframe, life-threatening ventricular arrhythmia may have occurred.

The first patient responded well to lorazepam (total 4 mg) within 4 hours. The second patient responded well and within a short time frame to lorazepam. The decided treatment response is compatible with previous reports and the appropriate dosage of lorazepam (oral, intravenous or intramuscular injection) was within the range of 2-18 mg highlighted as significant to three studies defining appropriate dosages for lorazepam.^(10,11,16)

In past studies, it has been noted that intramuscular lorazepam and intravenous diazepam can rapidly treat catatonia associated schizophrenia and major depression with a response rate of up to almost 100%.^(10,11) However, data relating to benzodiazepines on the treatment of organic catatonia is scarce.

As a result of treating the two patients discussed, it was found that intramuscular lorazepam is also effective in treating catatonia of renal function impairment, a noted similarity to treatments for other organic catatonia such as SLE and MS.^(14,15) Although catatonic symptoms were also be mentioned in patients with renal failure, the possible or detailed mechanisms were still unknown.⁽²⁾

Recently, Cottencin et al suggest that the treatment of catatonia must hold priority over the treatment of a somatic disorder or other psychiatric disorders.⁽¹⁷⁾ Although a detailed understanding of the mechanism associated with benzodiazepines in catatonia associated with renal failure remains to be explored, this report demonstrates that intramuscular lorazepam is a safe, effective and rapid relief to catatonia associated with renal function impairment in order to avoid the possible complications of catatonia including aspiration pneumonia and ventricular arrhythmia. In conclusion it should noted that patients receiving a continuous infusion of high dose lorazepam (10 mg/h) should be monitored for propylene glycol toxicity.⁽¹⁸⁾

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安定文針劑應用於腎衰竭合併僵直現象的病人：兩例個案報告

黃照恩 黃條來¹

僵直現象出現於腎衰竭病人的情形較少被描述。此處，我們將描述兩例腎衰竭個案出現僵直現象並對安定文針劑有良好的反應，其僵直現象獲得解除。個案一是末期腎衰竭合併有呼吸衰竭及嚴重肺炎，個案的僵直現象在使用安定文針劑共 4 毫克後得到緩解。個案二是酒精性肝硬化合併有橫紋肌溶解症與急性腎衰竭，個案的僵直現象在使用安定文針劑共 2 毫克後得到緩解。此結果顯示安定文針劑對於腎衰竭個案合併僵直現象的治療是安全、有效且快速的方法。這兩例個案在 6 個月的追蹤內並未再出現僵直現象。總而言之，安定文針劑對於腎衰竭個案合併僵直現象的治療應佔有重要的角色。(長庚醫誌 2010;33:106-9)

關鍵詞：安定文，僵直，腎衰竭

義大醫院 內科；¹長庚醫療財團法人高雄長庚紀念醫院 精神科；長庚大學 醫學院

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通訊作者：黃條來醫師，長庚醫療財團法人高雄長庚紀念醫院 精神科。高雄縣833鳥松鄉大埤路123號。

Tel.: (07)7317123轉8752; Fax: (07)7326817; E-mail: a540520@cgmh.org.tw