Case Report
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A Case of Acute Pancreatitis Associated with Risperidone Treatment

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Acute pancreatitis with antipsychotic treatment is rare but sometimes causes a fatal adverse effect. Most cases of acute pancreatitis due to atypical antipsychotic agents are reported to occur within six months of starting antipsychotic administration. Acute pancreatitis caused by risperidone is rare. The patient had a high fever, stomachache and vomiting. The results of the abdominal computed tomograhpy scan were negative. The results of the abdominal ultrasonography were positive for gallstones in gallbladder and distention of the common bile duct. She had been fasting and received antibiotic intravenous injections. Amylase and lipase titers were high. After risperidone discontinuation, both the levels of the amylase and the lipase were gradually decreased. Three months later, the patient still maintains a good clinical balance. Although atypical antipsychotic-induced pancreatitis has been reported in conjunction with hyperglycemia, the pathophysiologic mechanism of these adverse events remains unclear. This case got pancreatitis 6 month after risperidone treatment. Using the antipsychotic agents, it is necessary to monitor pancreas function.

KEY WORDS: Schizophrenia; Risperidone; Aripiprazole; Pancreatitis.

INTRODUCTION

Acute pancreatitis due to antipsychotic treatment is rare but sometimes causes a fatal adverse effect. Some atypical antipsychotic agents, including clozapine, olanzapine, quetiapine, and risperidone, are associated with acute pancreatitis.[1,2] Among them, acute pancreatitis caused by risperidone is the rarest.[3,4] Although most cases of acute pancreatitis due to atypical antipsychotic agents occur within 6 months of starting antipsychotic administration,[1] we experienced a schizophrenic patient suffering from pancreatitis after more than 6 months of risperidone therapy.

CASE

A 69-year-old Japanese woman was diagnosed with schizophrenia at the age of 30 years and received outpatient care at another mental hospital. Her positive symptoms were not prominent, but her cognitive level was so impaired that she could not regulate her appetite and consumed about 2,000 kcal/day in addition to three ordinary meals. She had never smoked, did not drink alcohol, and did not take any illegal drugs. She underwent a hemigastrectomy, but the exact cause was unknown. She had been taking 2 mg/day risperidone for more than 6 months. A neurological examination showed extrapyramidal stiffness. Blood tests were conducted repeatedly, but no abnormalities were detected. She developed a high fever, stomachache, and vomiting. We suspended the risperidone to improve her general condition. She was hospitalized for further investigation 2 days later. Blood tests (Table 1), abdominal ultrasonography, and a computed tomography (CT) scan were performed. Clinical features were accompanied by laboratory findings of hyperamylasemia (amylase, 1,191 U/L), hyperlipasemia (lipase, 1,514 U/L), and mild liver enzyme elevations. Creatine kinase (CK) was within the normal range. Blood pressure was stable and within the normal range. Results of the abdominal CT scan were negative for pancreatic and hepatic abnormalities. Results of the abdominal ultrasonography were positive for gallstones in the gallbladder and distention of the common bile duct. She had been fasting and received intravenous antibiotic injections. Subsequently, the amylase and lipase titers remained high (461 U/L and 804 U/L, respectively), although alanine and aspartate aminotransferases decreased gradually to normal levels.

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Table 1. Course of the blood test

Time point	Date of admission	Day 2	Day 6	Day 8	Day 13	Normal range
Amylase (U/L)	1,191	461	745	605	309	37-124
Lipase (U/L)	1,514	804	1,275	1,654	542	13-49
AST (U/L)	111	49	34	23	19	9-37
ALT (U/L)	238	166	81	51	27	3-49
CPK (U/L)	48	32	766	399	218	45-226
Risperidone (mg/day)	2	0	2	0	0	

AST, aspartate aminotransferase; ALT, alanine aminotransferase; CPK, creatine phosphokinase.

She did not have a painful or tender stomach. At this point, we felt that it was safe for her to start taking the risperidone again.

Two days after starting the risperidone, serum lipase and amylase increased again to 1,275 U/L and 745 U/L, respectively, and CK also increased (766 U/L). No neurological or physical signs were detected. We decided to suspend the risperidone and introduced 10 mg intravenous haloperidol injections once per day.

Two days after discontinuing the risperidone, the serum amylase decreased (605 U/L), but the serum lipase level remained elevated (1,654 U/L). One week after discontinuing the risperidone, the levels of amylase and lipase decreased gradually (309 U/L and 542 U/L, respectively), and CK dropped to the normal range. As her general clinical condition and biochemical markers were stable, we changed the haloperidol injection to an oral solution of 6 mg/day aripiprazole because her mental condition worsened after stopping the risperidone treatment. Her mental status improved with the aripiprazole treatment, and she was discharged without positive laboratory findings. The patient's monthly blood tests continue to be normal, including amylase, lipase, and blood cell counts.

DISCUSSION

Although atypical antipsychotic-induced pancreatitis has been reported in conjunction with hyperglycemia,[5] the pathophysiological mechanism of these adverse events remains unclear. Most antipsychotic-induced pancreatitis occurs within 6 months after administration[1]; however, our case developed pancreatitis more than 6 months after the start of risperidone treatment. Serotonin is associated with the development and aggravation of acute pancreatitis. Risperidone is a 5-HT2A antagonist and ameliorates diet-induced necrotic pancreatitis in mice,[6] and reduced serum pancreatic amylase levels is observed after endoscopic retrograde cholangiopancreatography.[7] However, there is no evidence of an association between risperidone treatment and acute pancreatitis. A thorough evaluation for pancreatitis, such as alcohol, tumor, and autoimmune causes, was completed in this case. Gallstones were present, which were due to an adverse effect of risperidone because the two separate risperidone administrations elevated serum amylase and lipase independently. Aripiprazole is currently used in such cases, as aripiprazole is thought to have fewer effects on metabolism, including saccharometabolism, than other atypical antipsychotic agents. Lifestyle was also a risk factor in this case. Thus, it is necessary to monitor pancreatic function in addition to hyperglycemia in such cases.

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