Case Report **OPEN ACCESS**

Acute pancreatitis and fibromyalgia: Cytokine link

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Abstract

Context: Fibromyalgia is a widespread musculoskeletal pain disorder found in 2% of the general population and with a preponderance of 85% in females, and has both genetic and environmental contribution. Acute pancreatitis is a severe condition and in most cases gallstones disease represents approximately half of the cases of acute pancreatitis, and 20-25% are related to alcohol abuse. Small numbers of cases are caused by a variety of other reasons but a few cases have no obvious cause, referred to as 'idiopathic'. Here we present a case where fibromyalgia might be linked to acute pancreatitis. We believe this has not been reported in this context in literature. **Case Report:** Fibromyalgia is a widespread musculoskeletal pain disorder found in 2% of the general population and with a preponderance of 85% in females, and has both genetic and environmental contribution. Patient had a cholecystectomy eight years previously. Patient feels tired almost all the time due to her fibromyalgia and requires family support for daily routine. Patient's blood results showed alanine transaminase 527 IU/L, alkaline phosphatase 604 IU/L, bilirubin 34 μmol/L, amylase 2257 IU/L, C-reactive protein 19 mg/L, Gamma-Glutamyl transpeptidase 851 IU/L, renal function and electrolytes were within normal limits. The patient was admitted to the high dependency unit with a diagnosis of acute pancreatitis. **Conclusion:** There is a known increase in levels of cytokines in patients with fibromyalgia. Part of the pathophysiology of acute pancreatitis is related to raised cytokines and immune deregulations. We hypothesize that elevated levels of cytokines in fibromyalgia has led to acute pancreatitis in our patient. Further epidemiological research on the incidence of pancreatitis in cytokine mediated conditions such as fibromyalgia is required.

Keywords: Fibromyalgia, acute pancreatitis, immunodysregulation, cytokines.

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Introduction

Fibromyalgia (FM) is a chronic condition and associated with several diseases. Increased levels of cytokines have been reported in FM patients. Here we hypothesize an atypical clinical presentation of acute pancreatitis linked with fibromyalgia secondary to raised cytokines. We think this has never been reported in the literature.

Case Report

A 57 year old female came in to the emergency department with sudden onset of severe epigastric pain. The patient had been vomiting and had watery diarrhoea for eight hours. Patient is known to have fibromyalgia, hypertension, Reiter's syndrome, irritable bowel syndrome, depression, trigeminal neuralgia and carpel tunnel decompression. She has been on carbamezapine, ramipril, citalopram and omeprazole.

Two years previously the patient had an oesophogastroduodenoscopy (OGD) and barium swallow for intermittent dyspepsia and vomiting, these tests were within normal limits and negative for helicobacter pylori (H. pylori).

Patient had a cholecystectomy eight years previously. Patient feels tired almost all the time due to her fibromyalgia and requires family support for daily routine.

On presentation the patient had a sinus tachycardia and clinically looked dehydrated, the initial diagnosis was viral gastroenteritis. Provisionally it was decided to discharge her with symptomatic treatment and advice only as she remained stable.

However, patient's blood results showed alanine transaminase (ALT) 527 IU/L, alkaline phosphatise (ALP) 604 IU/L, bilirubin 34 µmol/L, amylase 2257 IU/L, C-reactive protein (CRP) 19 mg/L, Gamma-Glutamyl transpeptidase (GGT) 851 IU/L, renal function and electrolytes were within normal limits. The patient was admitted to the high dependency unit with a diagnosis of acute pancreatitis. Magnetic resonance cholangiopancreatography (MRCP) the following day showed an intra-and extra biliary dilatation, most likely due to a combination of the previous cholecystectomy and swelling around the distal common bile duct from the acute pancreatitis. No duct stones identified. CT chest, abdomen and pelvis with contrast showed common bile duct (CBD) 10.6 mm and moderate peripancreatic free fluid in particular towards the tail. The patient improved with supportive management and was discharged.

Discussion

Acute pancreatitis is a common clinical condition. Most cases are secondary to biliary disease or excess of alcohol consumption. It is an inflammatory disorder, which develops a cascade of immunological events. At present, there is no treatment against severe acute pancreatitis, other than supportive intensive care. The relationship between pancreatic injury and the uncontrolled systemic response is not completely understood. It was first hypothesized in 1998 that the cytokines could play an important role in acute pancreatitis and suggested that inappropriate activation of the immune system might increase the severity of the local disease and the systemic complications [1].

Pro-inflammatory mediators believed to participate in the pathophysiology of this condition include: TNF-alpha, interleukin (IL)-1beta, IL-6, platelet activating factor, ICAM-1, IL-8, monocyte chemoattractant protein-1 (MCP-1). Anti-inflammatory mediators that play an important role in acute pancreatitis include IL-10 and IL-1 receptor antagonist (IL-1ra) [2, 3].

Experimental and clinical evidences have shown that pro-inflammatory cytokines and oxidative stress are critically involved in the development of local and systemic complications associated with severe acute pancreatitis and they appear to be the driving force for the initiation and propagations of the systemic response. Accordingly, pre-treatment with an antibody against TNF-alpha or blockade of TNF-alpha production with pentoxifylline ameliorates experimental acute pancreatitis. In addition, serum IL-6 and IL-8 levels appear to be correlated with severity of pancreatic inflammation.

Fibromyalgia (FM) is a widespread musculoskeletal pain disorder found in 2% of the general population and with a preponderance of 85% in females, and has both genetic and environmental contribution. Patients with fibromyalgia have been reported to display high rates of several concomitant medical and psychiatric disorders, including migraine, irritable bowel syndrome, chronic fatigue syndrome, major depression and panic disorder. FM has been associated with coxsackie B virus, parvovirus, chronic Lyme disease, HIV infection associated with fatigue and sleep abnormalities [4, 5].

There is alteration of cytokines in patients with FM for longer than 2 years, including increased serum levels of the pro-inflammatory mediators interleukin (IL-2), IL-2 receptor, IL-8, and increased IL-1 and IL-6 produced by stimulated peripheral blood mononuclear cells [6].

Also the skin of FM has shown detection of cytokines which indicates the presence of inflammatory foci, suggesting an inflammatory component in the induction of pain. No cytokines were found in healthy control skin [7].

The activation and regulation of cytokine patterns is implied in a variety of disease states, e.g. rheumatoid arthritis, ankylosing spondylitis, Crohn's disease, multiple sclerosis and certain skin diseases [8].

Our patient was diagnosed with FM more than a decade ago, consumed occasional alcohol and has had cholecystectomy. MRCP and CT abdomen did not reveal a cause of acute pancreatitis and there were no new changes to her medications. Her current medications are not known to be associated with acute pancreatitis.

Conclusion

There is a known increase in levels of cytokines in patients with FM. Part of the pathophysiology of acute pancreatitis is related to raised cytokines and immune deregulations. We hypothesize that elevated levels of cytokines in FM has led to acute pancreatitis in our patient. Further epidemiological research on the incidence of pancreatitis in cytokine mediated conditions such as fibromyalgia is required.

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