

Insufficient etiological workup of COVID-19-associated acute pancreatitis: A systematic review

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Introduction

Viral infections, including Coxsackie, mumps, hepatitis and herpes viruses are known causes of acute pancreatitis (AP). Viral AP is likely underdiagnosed, due to the insufficient etiological workup of idiopathic cases and cases where another, more apparent etiology (eg. alcohol consumption) is already present. Severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) infection, mostly causing respiratory symptoms, is also known to affect the gastrointestinal tract. Several case reports hypothesize that SARS-CoV-2 could be an etiological factor in AP.

Our aim was to assess all the available evidence in the literature relating to coronavirus disease 2019 (COVID-19) and AP.

Methods

This systematic review was registered with PROSPERO, registration ID: CRD42020186426. We conducted a systematic search in 5 databases (MEDLINE, Embase, CENTRAL, Web of Science, Scopus) searching for any study including at least 1 SARS-CoV-2-infected individual diagnosed with AP. Due to the low quality and poor comparability of the studies, a meta-analysis was not performed.

Results

Six case reports and two retrospective cohorts were included, containing data on eleven COVID-19 patients with AP. Five patients had AP according to the Atlanta classification. Other publications did not provide sufficient information on the diagnostic criteria. **Most cases were considered SARS-CoV-2-induced, while several established etiological factors were not investigated. We were able to identify other possible causes in most of them.**

Discussion

Before entertaining the possibility of a new virus as a causative agent in cases where no apparent etiological factors are present, other, less frequent causes of AP must be considered. Included cases lacked proper etiological workup, and often COVID-19 was named as the causative agent of AP, while other established factors were also present. **We strongly emphasize the need for guideline adherence when diagnosing and uncovering the underlying etiological factors of AP**, even during a pandemic.

Author (country)	Diagnostic workup			COVID-19 (PCR)	Etiological workup									Quality of case reports	
	Abdominal pain	Enzyme elevation (x)	Imaging		Biliary	Alcohol	HTG (>11.5 mmol/L)	Drug	Hypercalcemia	Ischemia	Auto-immunity	Viral (except nCoV)	Anatomy	JB1 Overall rating (/8)	Written according to CARE
Aloysius et al., United States	+	+	-	+	?	-	-	-	?	?	?	?	-	3	no
Anand et al., United Kingdom	+	?	+	+	?	-	?	+	?	?	?	?	-	0	no
Hadi et al., Denmark	?	+	+	+	?	-	-	?	-	+	?	?	?	4	no
	+	+	?	+	?	?	?	+	-	+	?	?	?	2	
Meireles et al., Portugal	+	+	-	+	?	-	-	-	-	-	-	-	-	1	no
Morrison et al., United States	?	+	?	+	?	?	+	+	?	+	?	?	?	1	no

Table 1 – Diagnostic and etiological workup and quality assessment of the studies. Biliary microlithiasis was included in the “biliary” etiology, so endoscopic ultrasonography or magnetic resonance cholangiopancreatography was needed to rule out this factor. Ischemia was considered in the case of shock and vasopressor therapy and was ruled out by computed tomography angiogram. Anatomical malformations were ruled out by computed tomography. The two columns on the right demonstrate the quality of included case reports based on the risk of bias according to the overall Joanna Briggs Institute Critical Appraisal score and adherence to Case Report guidelines on reporting cases. CARE: Case Report Guidelines; JB1: Joanna Briggs Institute; PCR: Polymerase chain reaction.

Authors declare no conflicts of interest