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ORIGINAL ARTICLE

Assessment of amylase and lipase levels following puncture biopsy and fine needle aspiration guided by endoscopic ultrasound in pancreatic lesions☆

Alejandro Membrillo-Romero[a,*], **Rubén Gonzalez-Lanzagorta**[a], **Dulce María Rascón-Martínez**[b]

[a] *Unidad de Endoscopía y Ultrasonido Endoscópico, Hospital de Especialidades del Centro Médico Nacional Siglo XXI, Ciudad de México, Mexico*
[b] *Unidad de Anestesiología, Hospital de Especialidades del Centro Médico Nacional Siglo XXI, Ciudad de México, Mexico*

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KEYWORDS
Pancreatic enzymes;
Fine needle aspiration biopsy;
Endoscopic ultrasound

Abstract
Background: Puncture biopsy and fine needle aspiration guided by endoscopic ultrasound has been used as an effective technique and is quickly becoming the procedure of choice for diagnosis and staging in patients suspected of having pancreatic cancer. This procedure has replaced retrograde cholangiopancreatography and brush cytology due to its higher sensitivity for diagnosis, and lower risk of complications.
Objective: To assess the levels of pancreatic enzymes amylase and lipase, after the puncture biopsy and fine needle aspiration guided by endoscopic ultrasound in pancreatic lesions and the frequency of post-puncture acute pancreatitis.
Material and methods: A longitudinal and descriptive study of consecutive cases was performed on outpatients submitted to puncture biopsy and fine needle aspiration guided by endoscopic ultrasound in pancreatic lesions. Levels of pancreatic enzymes such as amylase and lipase were measured before and after the pancreatic puncture. Finally we documented post-puncture pancreatitis cases.
Results: A total of 100 patients who had been diagnosed with solid and cystic lesions were included in the study. Significant elevation was found at twice the reference value for lipase in 5 cases (5%) and for amylase in 2 cases (2%), none had clinical symptoms of acute pancreatitis. Eight (8%) of patients presented with mild nonspecific pain with no enzyme elevation compatible with pancreatitis.

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* Corresponding author at: Unidad de Endoscopía y Ultrasonido Endoscópico, Hospital de Especialidades del Centro Médico Nacional Siglo XXI, Cuauhtémoc 330, Colonia Doctores, Delegación Cuauhtémoc, Ciudad de México, Mexico. Tel.: +55 56276900ext.213178/21318.
E-mail address: membriale@yahoo.com.mx (A. Membrillo-Romero).

Conclusion: Pancreatic biopsy needle aspiration guided by endoscopic ultrasound was associated with a low rate of elevated pancreatic enzymes and there were no cases of post-puncture pancreatitis.

PALABRAS CLAVE
Enzimas pancreáticas;
Biopsia por aspiración con aguja fina;
Ultrasonido endoscópico

Evaluación de los niveles de amilasa y lipasa posterior a la realización de biopsia por aspiración con aguja fina guiada por ultrasonido endoscópico en lesiones del páncreas

Resumen
Antecedentes: La biopsia por punción y aspiración con aguja fina guiada por ultrasonido endoscópico ha sido utilizada como una técnica eficaz que se está convirtiendo rápidamente en el procedimiento de elección para el diagnóstico y la estadificación de los pacientes en los que se sospecha cáncer de páncreas. Este procedimiento ha desplazado a la colangiopancreatografía retrógrada y a la citología por cepillado debido a su mayor sensibilidad y menor riesgo.
Objetivo: Determinar el nivel sérico de enzimas pancreáticas tales como amilasa y lipasa posterior a la realización de una biopsia por punción y aspiración con aguja fina guiada por ultrasonido endoscópico en lesiones de páncreas, además de la frecuencia de pancreatitis aguda pospunción.
Material y métodos: Se realizó un estudio longitudinal y descriptivo de casos consecutivos en pacientes que fueron sometidos a una biopsia por punción y aspiración con aguja fina. Se realizó la medición de los niveles séricos de enzimas pancreáticas amilasa y lipasa antes y después de la punción, además de documentar los casos de pancreatitis.
Resultados: Un total de 100 pacientes con lesiones pancreáticas de tipo sólido y quístico fueron incluidos. Encontramos una elevación clínicamente significativa, el doble del valor de referencia de lipasa en 5 casos (5%) y de amilasa en 2 (2%); en ningún caso se presentó cuadro clínico de pancreatitis aguda. El 8% de los pacientes refirió dolor no compatible con un diagnóstico de pancreatitis.
Conclusión: La biopsia por punción y aspiración con aguja fina guiada por ultrasonido endoscópico se asoció a una baja tasa de elevación de enzimas pancreáticas y en ningún caso se desarrolló pancreatitis pospunción.

Background

Endoscopic ultrasound-guided (EUG) fine needle aspiration biopsy (FNAB) has been used for diagnosis in patients with a suspected tumour of the pancreas,[1–6] because ultrasound has been demonstrated to be more sensitive for diagnosis, and there is a low risk of complications. Reports of complications associated with the procedure vary from 0% to 5%, these include: acute pancreatitis,[7] bleeding, infection and perforation. The risk factors for biopsy-related pancreatitis are unknown, but the result of one study show that patients with a history of recent acute pancreatitis or puncture of a healthy pancreas are more likely to develop acute pancreatitis after fine needle aspiration biopsy,[8] therefore some researchers consider such a history a risk factor.[9]

Acute pancreatitis or acute inflammation of the pancreas is secondary to the intraglandular activation of the pancreatic enzymes and is a disease of varied clinical presentation from very mild, self-limiting cases to multiorgan failure and death. This is a local inflammatory process which results in a systemic inflammatory response in most cases.[10]

The disease's pathophysiology includes the activation and release of pancreatic enzymes into the interstitium with pancreatic self-digestion and in severe cases, multiple organ dysfunction due to spread of the inflammatory mediators of the pancreas[11,12] and other pancreatic enzymes such as amylase, lipase and nucleases, which are also actively secreted.

The production of cytokines and chemokines by the acinar cells of the pancreas has recently been recognised to be the first signal required for recruitment of inflammatory cells to the pancreas during the onset of pancreatitis.[13] Damage to the acinar cell is followed by a proinflammatory cascade which results in pancreatic necrosis, systemic inflammatory response syndrome and distant organ dysfuntion.[14] Chemokines are related to highly conserved cytokines with chemotaxis properties and orchestrate the migration of leukocytes to areas of inflammation.[15] In pancreatitis cases, amylase tends to elevate in the first 24 h and remains elevated from 1 to 3 days; levels usually