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ORIGINAL ARTICLE

Incidence of bacteremia in cirrhotic patients undergoing upper endoscopic ultrasonography

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KEYWORDS
Bacteremia;
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Antibiotics

Abstract
Background: The incidence of bacteremia after endoscopic ultrasonography (EUS) or EUS-guided fine-needle aspiration (EUS-FNA) is between 0% and 4%, but there are no data on this topic in cirrhotic patients.
Aim: To prospectively assess the incidence of bacteremia in cirrhotic patients undergoing EUS and EUS-FNA.
Patients and methods: We enrolled 41 cirrhotic patients. Of these, 16 (39%) also underwent EUS-FNA. Blood cultures were obtained before and at 5 and 30 min after the procedure. When EUS-FNA was used, an extra blood culture was obtained after the conclusion of radial EUS and before the introduction of the sectorial echoendoscope. All patients were clinically followed up for 7 days for signs of infection.
Results: Blood cultures were positive in 16 patients. In 10 patients, blood cultures grew coagulase-negative *Staphylococcus*, *Corynebacterium* species, *Propionibacterium* species or *Acinetobacterium Lwoffii*, which were considered contaminants (contamination rate 9.8%, 95% CI: 5.7–16%). The remaining 6 patients had true positive blood cultures and were considered to have had true bacteremia (15%, 95% CI: 4–26%). Blood cultures were positive after diagnostic EUS in five patients but were positive after EUS-FNA in only one patient. Thus, the frequency of bacteremia after EUS and EUS-FNA was 12% and 6%, respectively (95% CI: 2–22% and 0.2–30%, respectively). Only one of the patients who developed bacteremia after EUS had a self-limiting fever with no other signs of infection.

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Conclusion: Asymptomatic Gram-positive bacteremia developed in cirrhotic patients after EUS and EUS-FNA at a rate higher than in non-cirrhotic patients. However, this finding was not associated with any clinically significant infections.

PALABRAS CLAVE
Bacteriemia;
Cirrosis;
Ultrasonografía endoscópica;
USE-PAAF;
Profilaxis;
Antibióticos

Incidencia de bacteriemia en pacientes cirróticos sometidos a ultrasonografía endoscópica alta

Resumen
Introducción: La incidencia de bacteriemia después de una ultrasonografía endoscópica (USE) o USE con punción aspirativa con aguja fina (USE-PAAF) se sitúa entre el 0-4%. No existen datos acerca de la incidencia en pacientes con cirrosis hepática.
Objetivo: Evaluar prospectivamente la incidencia de bacteriemia en pacientes cirróticos sometidos a USE y USE-PAAF.
Pacientes y métodos: Se incluyeron un total de 41 pacientes. Dieciséis (39%) fueron sometidos también a USE-PAAF. Se realizaron hemocultivos antes y a los 5 y 30 minutos después del procedimiento. Cuando se practicó USE-PAAF se obtuvo una muestra de sangre adicional después de acabar la USE radial y antes de la introducción del ecoendoscopio sectorial. Todos los pacientes fueron seguidos durante 7 días.
Resultados: Los hemocultivos fueron positivos en 16 pacientes. En 10 pacientes crecieron gérmenes que fueron considerados contaminantes (tasa de contaminación 9,8%, IC 95%: 5,7-16%). Los 6 pacientes restantes tuvieron hemocultivos positivos por gérmenes no contaminantes y fueron considerados verdaderas bacteriemias (15%, IC 95%: 4-26%). En 5 pacientes los hemocultivos fueron positivos después de la USE diagnóstica y solo en uno después de la USE-PAAF. Por lo tanto, la frecuencia de bacteriemia asociada a USE y USE-PAAF fue 12 y 6%, respectivamente (IC 95%: 2-22% y 0,2-30%, respectivamente). Solo uno de los pacientes presentó bacteriemia sintomática tras la USE que consistió en fiebre autolimitada sin otros signos de infección.
Conclusión: Los pacientes cirróticos presentan una incidencia de bacteremia asintomática por gérmenes gram-positivos después de la USE (con o sin PAAF) mayor que los pacientes sin esta patología. Sin embargo, este hecho no se asocia a una mayor incidencia de infecciones clínicamente significativas.

Introduction

The risk of bacteremia after EUS of the upper GI tract in non-cirrhotic patients is low (0–4%),[1,2] and it is not increased by the performance of EUS-guided fine-needle aspiration (EUS-FNA).[1–3] Moreover, preliminary results suggest that bacteremia and associated complications are uncommon after EUS-FNA of solid rectal and perirectal lesions.[4] As a result, antibiotic prophylaxis may not be warranted for spontaneous bacterial endocarditis in the general population undergoing EUS and/or EUS-FNA.

As it is well known, a high risk of bacteremia and septic complications has been described for patients with advanced liver diseases undergoing endoscopic procedures other than EUS.[5–7] Colonoscopy seems not to induce bacteremia in cirrhotic patients with or without ascites in the absence of GI bleeding[8] whereas sclerotherapy of esophageal varices has been associated with bacteremia rates as high as 31%.[9] It has been suggested that this fact could be related to an impaired ability to clear blood-circulating bacteria from the blood due to the compromised immune function and the portal systemic shunting typical in cirrhosis.[10] Nevertheless, no data exists on the risk of bacteremia and other infectious complications in cirrhotic patients undergoing EUS or EUS-FNA and, therefore, there is a lack of information on the need of antibiotic prophilaxis for endocarditis and spontaneous bacterial peritonitis.

This prospective study was undertaken to specifically assess the incidence of bacteremia in cirrhotic patients undergoing upper EUS with or without FNA.

Patients and methods

Patients

During a 12-month period, consecutive cirrhotic patients undergoing upper EUS with or without FNA were enrolled in this prospective study. Exclusion criteria were the following: (1) age less than 18 years; (2) bacterial infection and/or antibiotic treatment within the previous 2 weeks; (3) clinical evidence of any intercurrent complication such as GI bleeding or encephalopathy within 2 weeks of EUS; (4) esophageal stricture dilation or sclerotherapy of esophageal varices within 2 weeks of EUS; (5) treatment with albumin within the previous two weeks; (6) need for antibiotic prophylaxis according to American Society for Gastrointestinal Endoscopy (ASGE)[11]; and (7) lack of informed consent. No patient was included more than once. This