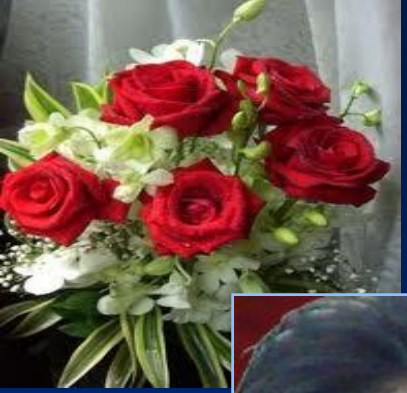

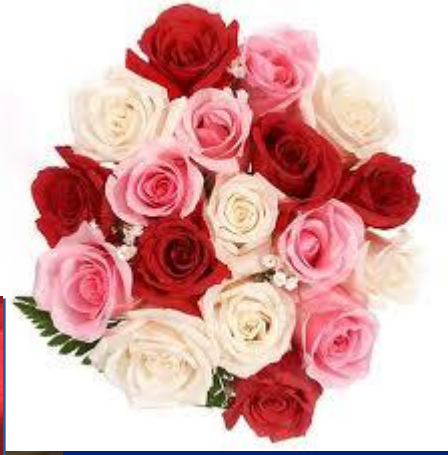

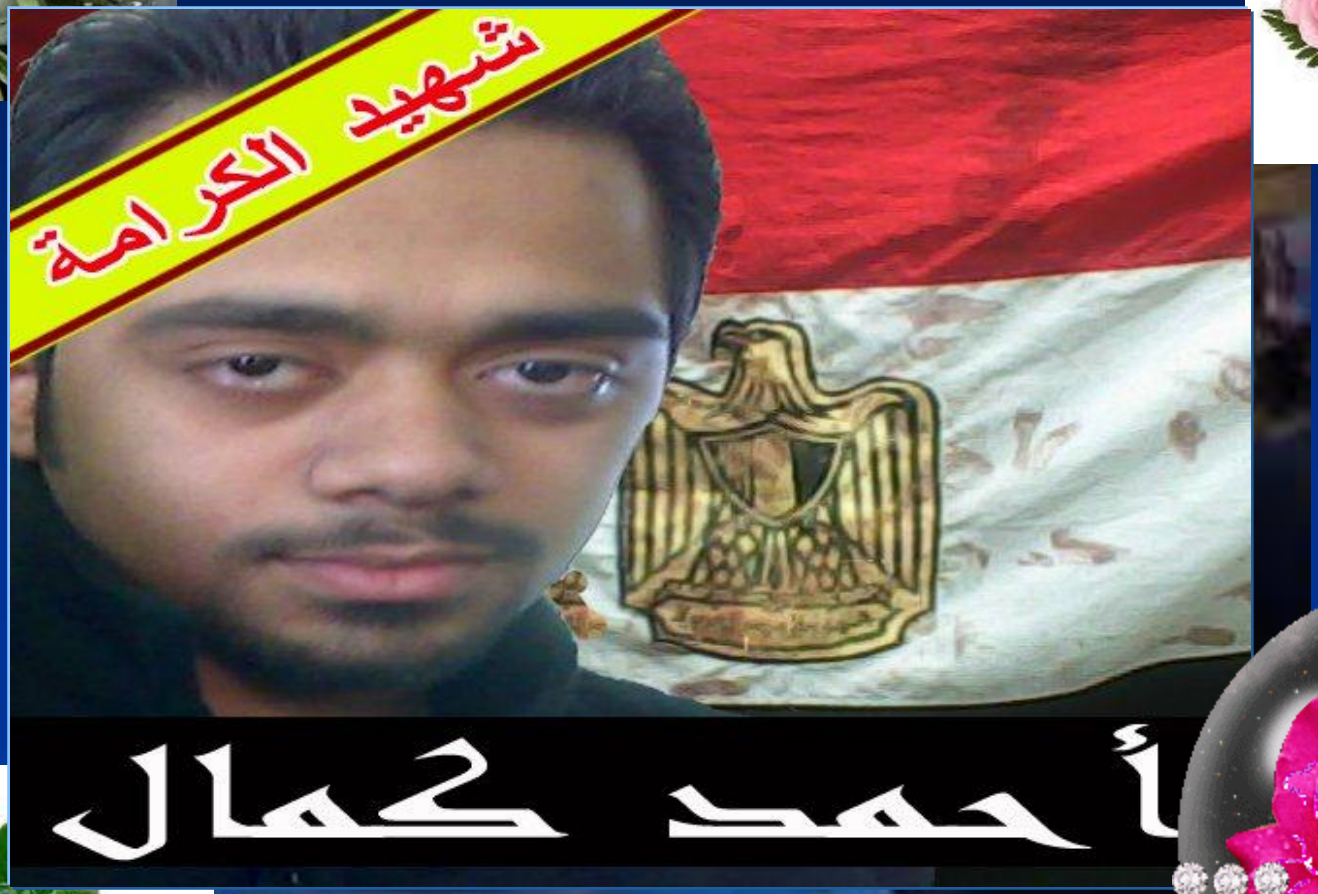
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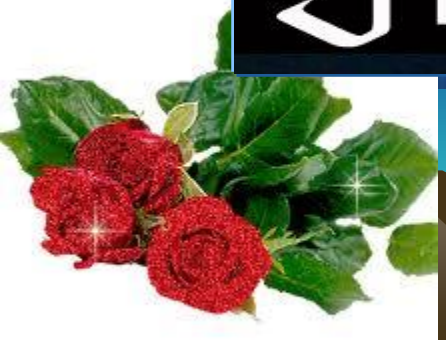

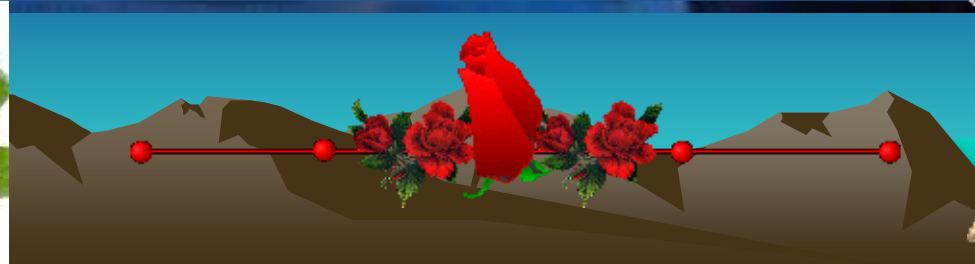

Guidelines of spontaneous bacterial peritonitis(SBP)

Prepared by

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- Spontaneous bacterial peritonitis (SBP) is infection of the peritoneal cavity without an evident source.

-SBP is a very common bacterial infection in patients with cirrhosis and ascites.

Diagnosis of spontaneous bacterial peritonitis

Diagnostic paracentesis: in whom and when

The diagnosis of SBP is based on diagnostic paracentesis .

-All patients with cirrhosis and ascites are at risk of SBP and the prevalence of SBP in outpatients is 1.5–3.5% and 10% in hospitalized patients.

-Rimola A, et al. Diagnosis, treatment and prophylaxis of spontaneous bacterial peritonitis: a consensus document. International Ascites Club. J Hepatol 2000;32:142–153.

Patients with SBP may have one of the following:

(1) ***local symptoms and/or signs of peritonitis:***
abdominal pain, abdominal tenderness, vomiting, diarrhea, ileus;

(2) ***signs of systemic inflammation*****: hyper or hypothermia, chills, altered white blood cell count, tachycardia, and/or tachypnea;**

(3) ***worsening of liver function*****;**

(4) ***hepatic encephalopathy*****;**

(5) ***shock*****;**

(6) ***renal failure*****;**

(7) ***gastrointestinal bleeding*****.**

*** However, it is important to point out that SBP may be asymptomatic, particularly in outpatients.**

1- Ascitic fluid cell analysis:

- **Peritoneal infection causes an inflammatory reaction resulting in an increased number of neutrophils in ascitic fluid.**

-The greatest sensitivity for the diagnosis of SBP is reached with a cutoff ***neutrophil count of 250/mm3***, although the greatest specificity is reached with a cutoff of 500 neutrophils/mm3.

There may be some delay in obtaining an ascitic fluid cell count, the use of ***reagent strips (RSs)*** has been proposed for a rapid diagnosis of SBP

The use of reagent strips **cannot be recommended** for the rapid diagnosis of SBP.

2- Ascitic fluid culture

-When culture is positive (40% of cases), the most common pathogens include Gram-negative bacteria (GNB), usually:

Escherichiacoli and Gram-positive cocci (mainly streptococcus species and enterococci).

-30% of isolated GNB are resistant to quinolones
-30% are resistant to trimethoprim–sulfamethoxazole .
-70% of quinolone-resistant GNB are also resistant to trimethoprim–sulfamethoxazole

- **The incidence of SBP due to quinolon eresistant GNB is higher in patients on norfloxacin therapy than in patients ‘naïve’ for this treatment.**

- ***The rate of cephalosporin- resistant GNB is low in patients with SBP regardless of norfloxacin prophylaxis .***

-Patients on norfloxacin prophylaxis may develop SBP caused by Gram-positive cocci .

-Patients with an ascitic fluid neutrophil count P250 cells/mm3 and negative culture are similar to that of patients with culture- positive and should be treated in a similar manner.

دعـوة

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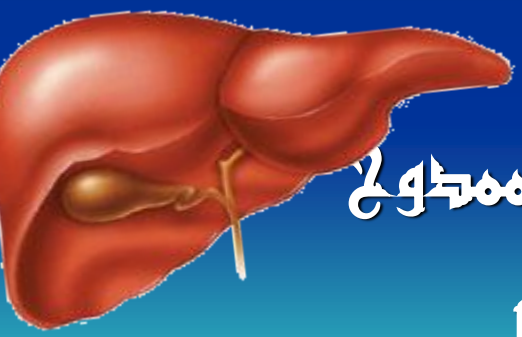

أ.د/ محمد شرف الدين

سكرتير المؤتمر

أ.د/ ممدوح

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EASL EUROPEAN ASSOCIATION FOR THE STUDY OF THE LIVER | JOURNAL OF HEPATOLOGY

EASL clinical practice guidelines on the management of spontaneous bacterial peritonitis

Journal of Hepatology 2010 vol. 53 j 397–417

Management of spontaneous bacterial peritonitis

1- Empirical antibiotic therapy:

-It must be initiated immediately after the diagnosis of SBP, without the results of ascitic fluid culture. (Level A1).

-Potentially nephrotoxic antibiotics (i.e., aminoglycosides) should not be used as empirical therapy .

Since the most common causative organisms of SBP are Gram-negative aerobic bacteria, such as E. coli, the first line antibiotic treatment are third-generation cephalosporins (Level A1).

-Infection resolution is obtained in 77–98% of patients. A dose of 4 g/day is as effective as a dose of 8 g/day . A 5-day therapy is as effective as a 10-day treatment

Alternatively, *amoxicillin/clavulanic acid*, first given intravenously then orally, has similar results with respect to SBP resolution and mortality, compared with cefotaxime and with a much lower cost (Level B1).

The use of quinolones should not be considered in patients who :

** Taking these drugs for prophylaxis against SBP,

**In areas where there is a high prevalence of quinolone resistant bacteria

** In nosocomial SBP (Level B1).

***Ciprofloxacin*, given either for 7 days intravenously or for 2 days intravenously followed by 5 days orally, results of SBP resolution rate and hospital survival compared with cefotaxime.**

Treatment: Recommendations

Oral ofloxacin (400 mg twice /d) can be considered a substitute for i.v cefotaxime in inpatients **without**

- Vomiting
- Shock
- Grade II (or higher) HE, or
- Serum creatinine >3mg/dl. (level I)

- ***Switch therapy*** **(i.e., use of intravenous antibiotic initially, followed by oral step-down administration) with ciprofloxacin is more cost-effective than intravenous cefotaxime .**

- ***Oral ofloxacin*** **(400 mg/d twice daily) has given similar results as intravenous cefotaxime in uncomplicated SBP, without renal failure, hepatic encephalopathy, gastrointestinal bleeding, ileus, or .**

- **Cefotaxime or amoxicillin/clavulanic acid are effective in patients who develop SBP while on norfloxacin prophylaxis**

SBP resolves with antibiotic therapy in approximately 90% of patients. Resolution of SBP should be proven by demonstrating a decrease of ascitic neutrophil count to <250/mm3 and sterile cultures of ascitic fluid, if positive at diagnosis (Level A1).

A second paracentesis after 48 h of start of treatment may help guide the effect of antibiotic therapy.

Failure of antibiotic therapy should be suspected if :
**worsening of clinical signs and symptoms
**no marked reduction or increase in ascitic fluid neutrophil count compared to levels at diagnosis.

Failure of antibiotic therapy is usually due to resistant bacteria or secondary bacterial peritonitis.

Once secondary bacterial peritonitis has been excluded, antibiotics should be changed . (Level A1).

2- Intravenous albumin in patients with spontaneous bacterial peritonitis without septic shock:

SBP without septic shock may precipitate deterioration of circulatory function with severe hepatic insufficiency, hepatic encephalopathy, and type 1 hepatorenal syndrome (HRS) and has approximately a 20% hospital mortality rate despite infection resolution

-**In patients with SBP treated with *cefotaxime* showed that *albumin* (1.5 g/kg body weight at diagnosis, followed by 1 g/kg / day for 3 days) significantly decreased the incidence of type 1 HRS** improves survival (Level A1).

-Treatment with albumin was particularly effective in patients with baseline serum bilirubin ≥ 4 mg/dl or serum creatinine ≥ 1 mg/dl.

***-It is unclear whether intravenous albumin is useful in patients with baseline bilirubin < 4 mg/dl and creatinine <1 mg/dl, as the incidence of type 1 HRS was very low in the two treatment groups (7% without albumin and 0% with albumin*).**

-It is *not* known whether *crystalloids or artificial colloids* could replace albumin in the prevention of HRS in patients with SBP.

Further studies are needed to assess the efficacy of albumin as well as other expanders in the management of SBP.

Until more information is available, we recommend that all patients who develop SBP should be treated with broad spectrum antibiotics and intravenous albumin (Level A2)

Prophylaxis of spontaneous bacterial peritonitis

-Most episodes of SBP are thought to result from the translocation of enteric GNB, the ideal prophylactic agent should be:

* ***safe,***
* ***affordable,***
* ***effective at decreasing the amounts of these organisms from the gut***

- **Given the high cost and inevitable risk of developing resistant organisms, the use of prophylactic antibiotics must be strictly restricted to patients at high risk of SBP.**

-Three high-risk patient populations have been identified:

(1) patients with acute gastrointestinal hemorrhage;

(2) patients with low total protein content in ascitic fluid and no prior history of SBP (primary prophylaxis);

(3) patients with a previous history of SBP (secondary prophylaxis).

1. Patients with acute gastrointestinal hemorrhage

-Bacterial infection, including SBP, is a major problem in patients with cirrhosis and acute gastrointestinal hemorrhage, occurring in between *25% and 65%* of patients with gastrointestinal bleeding.

-The incidence of bacterial infection is particularly high in patients with advanced cirrhosis and/or severe hemorrhage.

The presence of bacterial infection in patients with variceal hemorrhage is associated with an increased rate of failure to control bleeding, rebleeding , and hospital mortality.

-Antibiotic prophylaxis has been shown to prevent infection in patients with gastrointestinal bleeding and decrease the rate of rebleeding .

Recommendations In patients with gastrointestinal bleeding and severe liver disease : ceftriaxone is the prophylactic antibiotic of choice, whilst patients with less severe liver disease may be given oral norfloxacin or an alternative oral quinolone to prevent the development of SBP (Level A1).

-In recent years, the epidemiology of bacterial infections in cirrhosis has changed, with an increasing incidence of SBP and other infections caused by quinolone-resistant bacteria.

Norfloxacin (400 mg/12 h orally for 7 days) **is the most commonly used approach for the prophylaxis of bacterial infections in patients with gastrointestinal hemorrhage.**

2. Patients with low total protein content in ascitic fluid without prior history of SBP

Cirrhotic patients with low ascitic fluid protein concentration (<10 g/L) and/or high serum bilirubin levels are at high risk of developing a first episode of SBP .

Patients with severe liver disease with ascitic fluid protein lower than 15 g/L and without prior SBP showed that norfloxacin (400 mg/day) reduced the risk of SBP and improved survival. Therefore, these patients should be considered for long-term prophylaxis with norfloxacin (Level A1).

-Norfloxacin administration significantly reduced the 1-year probability of developing SBP (7% versus 61%) and HRS (28% versus 41%).

- The duration of primary antibiotic prophylaxis has not been established.

3. Patients with prior SBP

Patients who recover from an episode of SBP have a high risk of developing recurrent SBP.

In those patients, the administration of prophylactic antibiotics reduces the risk of recurrent SBP. Norfloxacin (400 mg/day, orally) is the treatment of choice (Level A1).

Alternative antibiotic includes ciprofloxacin (750 mg once weekly, orally) but evidence is not as strong as that with norfloxacin (Level A2).

-Treatment with norfloxacin reduced the probability of recurrence of SBP from *68% to 20%* and the probability of *SBP due to GNB from 60% to 3%.*

-Norfloxacin was more effective in the prevention of SBP recurrence due to Enterobacteriaceae.

--Patients recovering from an episode of SBP should be considered for *liver transplantation.* (LevelA1).

-It is uncertain whether prophylaxis should be continued without interruption until liver transplantation or death in all patients with prior SBP or if treatment could be discontinued in patients showing an improvement of liver disease.

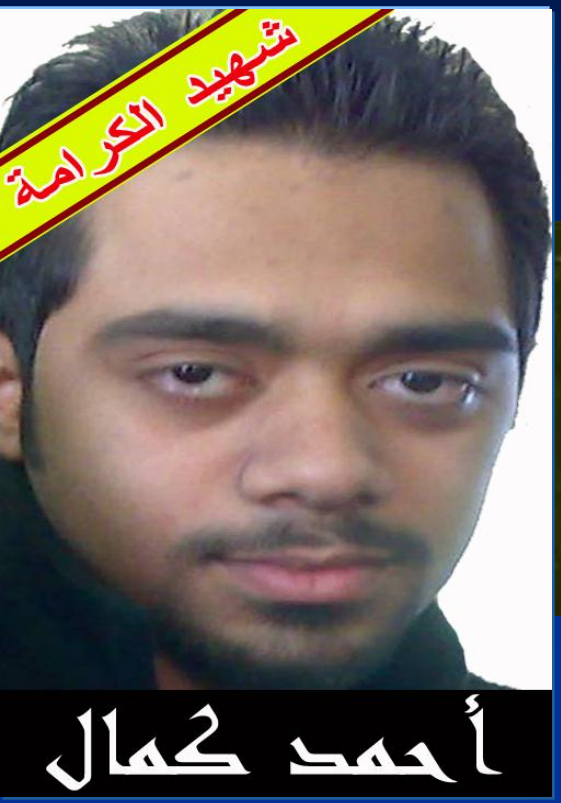
4. Issues with prolonged antibiotic prophylaxis

- ***Prolonged antibiotic prophylaxis (primary or secondary)*** **has led to the emergence of GNB resistant to quinolones .**

There is an increased likelihood of infections from Gram-positive bacteria in patients who have received long-term SBP prophylaxis .

-This underlines the need to restrict the use of prophylactic antibiotics to patients with the greatest risk of SBP.

- Common sense would suggest that quinolone prophylaxis should be discontinued in patients who develop infection due to quinolone-resistant bacteria.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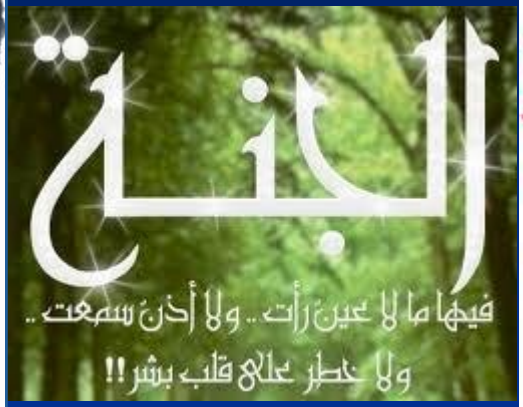
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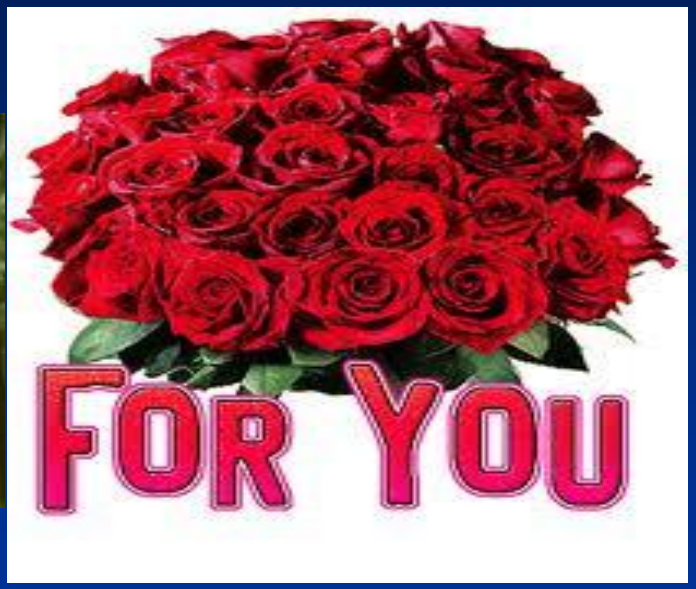
FOR YOU

Thank you