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TRIMETHOPRIM-SULFAMETHOXAZOLE VERSUS NORFLOXACIN IN THE PROPHYLAXIS OF SPONTANEOUS BACTERIAL PERITONITIS IN CIRRHOSIS

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ABSTRACT - ***Background*** – The prognosis of patients with chronic liver disease and spontaneous bacterial peritonitis is poor, being of great importance its prevention. ***Aim*** - To compare the effectiveness of trimethoprim-sulfamethoxazole versus norfloxacin for prevention of spontaneous bacterial peritonitis in patients with cirrhosis and ascites. ***Patients and Methods*** - Fifty seven patients with cirrhosis and ascites were evaluated between March 1999 and March 2001. All of them had a previous episode of spontaneous bacterial peritonitis or had ascitic fluid protein concentration ≤1 g/dL and/or serum bilirubin ≥ 2.5 mg/dL. The patients were randomly assigned to receive either 800/160 mg/day of trimethoprim-sulfamethoxazole 5 days a week or 400 mg of norfloxacin daily. The mean time of observation was 163 days for the norfloxacin group and 182 days for the trimethoprim-sulfamethoxazole group. In the statistical analysis, differences were considered significant at the level of 0.05. ***Results*** - According to the inclusion criteria, 32 patients (56%) were treated with norfloxacin and 25 (44%) with trimethoprim-sulfamethoxazole. Spontaneous bacterial peritonitis occurred in three patients receiving norfloxacin (9.4%) and in four patients receiving trimethoprim-sulfamethoxazole (16.0%). Extraperitoneal infections occurred in 10 patients receiving norfloxacin (31.3%) and in 6 patients receiving trimethoprim-sulfamethoxazole (24.0%). Death occurred in seven patients (21.9%) who received norfloxacin and in five (20.0%) who received trimethoprim-sulfamethoxazole. Side effects occurred only in the trimethoprim-sulfamethoxazole group. ***Conclusion*** - In spite of the reduced number of patients and time of observation, trimethoprim-sulfamethoxazole and norfloxacin were equally effective in spontaneous bacterial peritonitis prophylaxis, suggesting that trimethoprim-sulfamethoxazole is a valid alternative to norfloxacin.

HEADINGS – Peritonitis. Liver cirrhosis. Ascites. Trimethoprim-sulfamethoxazole combination. Norfloxacin.

INTRODUCTION

Patients with chronic liver disease (CLD) are particularly susceptible to infections. They may come from the community or may be nosocomial. During hospitalization, the prevalence of bacterial infections in cirrhotic patients is around 25%-40%, with hospital mortality of approximately 30%[5, 13, 27, 36].

The extraperitoneal infections which most commonly affect cirrhotic patients are those of the urinary and respiratory tracts and of the skin, as well as sepsis of unknown origin[5, 30]. However, the most significant infection affecting the cirrhotic patient is spontaneous bacterial peritonitis (SBP). Its prevalence in cirrhotics with ascites at hospital admission ranges from 10% to 27% in the literature[1, 2, 14]. In our community, SBP prevalence was 11%[8].

The current hospital mortality rate related to SBP can be as high as 30%-40%, often as a result of complications other than the infection itself. Among death causes are digestive hemorrhage, liver failure, and renal failure[25, 38, 46]. The 1-year survival rate after the first episode of SBP is 30%-45%[45], the recurrence of infection being common (about 65% in 1 year)[38]. In our community, SBP is the third leading cause of death in patients with cirrhosis and ascites[26].

Given the prevalence and the limited prognosis related to SBP in the patient with CLD and ascites, it is crucial to avoid it during the natural history of the disease. The prophylactic measure used to avoid episodes of SBP is

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selective intestinal decontamination (SID). The most commonly used antibiotic in SID is norfloxacin (NO)[42].

The use of antibiotic prophylaxis to prevent bacterial infections in cirrhotic patients is today an established practice in cases of acute digestive hemorrhage[4].

The prevention of a new episode of SBP (secondary prophylaxis) is also recommended by consensus[34].

The effort to prevent a first episode of SBP in a patient with cirrhosis and ascites is called primary prophylaxis. Early studies were based on the premise that the opsonic activity and complement levels correlate with ascitic fluid protein concentration. Thus, low-protein ascitic fluid (below 1.5 or 1 g/dL) was recognized as a predisposing factor to the development of SBP[24, 37]. Despite the favorable results in studies evaluating this form of prophylaxis[17, 32, 42], the lack of an unequivocal benefit in survival, the inconsistency of the groups studied, and the emergence of resistant bacteria have rendered the indication of primary prophylaxis of SBP disputable. The presence of hyperbilirubinemia, indicating liver dysfunction, could be another element suggesting the importance of this kind of prophylaxis[2]. Indeed, the meeting of the Ascites International Club for defining guidelines for SBP[34] did not reach a consensus about the recommendation of the use of antibiotics in primary prophylaxis. Although a recent guideline has suggested benefit of primary prophylaxis in patients whose ascitic fluid total protein is less than or equal to 1 g/dL or whose serum bilirubin is greater than 2,5 g/dL[40].

The prophylaxis using NO in patients considered at high risk for the development of SBP is not, however, free of complications. The greatest concern at present is the shifting range of causative agents of SBP and the development of bacterial resistance[6, 11, 12, 13, 31, 32, 33].

As an alternative to NO, other antibiotics have been used as prophylactic agents for SBP in cirrhotic patients[35, 41, 44]. Because sulfamethoxazole/trimethoprim (SMZ/TMP) is a cost-effective drug[20, 41] in prophylactic therapy, with few side effects and available for free in the public health system in many countries (which could extend this strategy to a larger number of patients), it could be indicated as a valid option in prophylaxis.

As we have not found any study in the literature comparing the effectiveness of SMZ/TMP and NO in the prophylaxis of SBP in cirrhotic patients with ascites, our aim here is to compare the effectiveness of these two drugs.

PATIENTS AND METHODS

From March 1999 to March 2001 consecutive hospitalizations of patients with liver cirrhosis and ascites were evaluated at the Gastroenterology and Hepatology Service of the "Irmandade Santa Casa de Misericórdia de Porto Alegre (ISCMPA)", in Porto Alegre, RS, south of Brazil.

The diagnosis of cirrhosis was based on clinical, laboratory, endoscopic, ultrasonographic and/or histological criteria.

The degree of hepatocellular failure was evaluated by Child-Pugh's classification.

The criteria for patient inclusion were 1) previous episode of SBP or 2) total protein in the ascitic fluid below or equal to 1 g/dL and/or total serum bilirubin above or equal to 2.5 mg/dL.

The exclusion criteria were: allergy to sulfonamidas or quinolones; antibiotic therapy in the 2 weeks preceding inclusion; recent (i.e. within the previous 7 days) episode of digestive hemorrhage; diagnosis of hepatocellular carcinoma or other neoplasias able to shorten life expectancy; and patient refusal to take part in the study.

The selected patients were randomly assigned to receive 400 mg of norfloxacin daily or 800/160 mg of trimethoprim/sulfamethoxazole 5 days a week.

The same protocol was used in the "Hospital Universitário de Santa Catarina", Florianópolis, SC, in the "Hospital das Clínicas de Salvador", Salvador, BA, and in the "Hospital Universitário de Sergipe", Aracajú, SE.

Considering all centers of data collection, 57 patients were included in the present study, 32 receiving NO (60%) and 25 SMZ/TMP (40%).

Data concerning serum levels of albumin, total bilirubin, prothrombin time, urea, creatinine, and blood count were collected in all cases.

All patients were submitted to diagnostic paracentesis within the first 48 hours of hospitalization. If during hospitalization there were suspicion of SBP, suggested by fever, abdominal pain, leukocytosis, intractability of ascites, development of encephalopathy, or general decline in patient health status a diagnostic paracentesis was repeated[7, 10, 20].

The diagnosis of SBP was considered as the presence of more than 250 polymorphonuclear leukocytes (PMN)/mm^3 in the ascitic fluid, in the absence of intra-abdominal causes of infection[34].

Causes of peritoneal effusion other than cirrhosis were ruled out by standard criteria[23, 25].

Total protein levels, PMN counts, and the results of ascitic fluid cultures were evaluated.

For the bacteriological analysis, 10 mL of the ascitic fluid were inoculated into blood culture bottles at bedside for aerobic and anaerobic bacteria using the Bact-Alert system (Organon-Teknica)[39].

The development of extra-peritoneal infections was monitored in all patients by performing complementary diagnostic examinations (chest X-rays, culture of sputum, urine analysis, and urine and blood cultures) in the presence of a suspicious situation.

In case of infection, prophylaxis was discontinued and the choice of antibiotic was made by the assistant group.

Nosocomial infections were considered as those which developed at least 72 hours after hospital admission[28, 32].

Events such as development of SBP, total resolution of ascites, death or liver transplantation were regarded as end-point.

After hospital discharge, patients were followed on an outpatient basis monthly in the first 3 months and then, if stable, at 3-month intervals.

Patients were followed prospectively for a period varying from 3 to 547 days.

If adverse reactions to prophylaxis were detected, the drugs should be discontinued.

The protocol was approved by the Research Ethics Board of the hospitals involved. Patients were informed of the nature of

the study and they or their representatives signed the Informed Consent Form.

A descriptive analysis of the data was carried out with frequency tables. The mean and standard deviation were calculated for the quantitative variables and the percentages for the categorical ones. The associations between the quantitative variables were determined through Student's *t* test and between categorical ones through the Chi-square test. Fisher's exact test was used for variables with non-parametric distribution, and Pearson's correlation for multiple comparisons between the means.

In the statistical analysis, differences were considered significant at the level of 0.05.

RESULTS

Clinical and laboratory characteristics

Both of the groups of patients studied presented a homogeneous distribution in their clinical and laboratory characteristics, except for creatinine, serum urea and ascitic fluid total proteins, as shown in Table 1. Although ascitic fluid protein levels were lower in the group using NO, when the critical discriminative level of 1 g/dL was used to sort the patients more prone to developing SBP, no differences were found between the groups ($P = 0.15$).

The mean follow-up was of 163 days for the NO group, and 182 days for the SMZ/TMP group.

Prophylaxis indication

Table 2 shows all indications evaluated. The grouping was done according to the strength of indication, in descending order of importance. A patient could be included in more than one category.

TABLE 2 – Indication of prophylaxis in the groups studied

	Group 1 (NO, n = 32)	Group 2 (SMZ/TMP n = 25)
Previous SBP	14/41.2%	8/32.0 %
TP ≤ 1.0 g/dL + TB ≥2.5 mg/d	7/20.6%	4/24.0 %
TP ≤ 1.0 g/dL	10/29.4%	7/28.0 %
TB ≥ 2.5 mg/dL	3/8.8%	6/16.0 %

SMZ/TMP = sulfamethoxazole/trimethoprim; NO = norfloxacin; SBP = spontaneous bacterial peritonitis; TB = total bilirubin; TP= total protein in ascitic fluid

As one could see, there was no statistical difference concerning prophylaxis indication between the groups evaluated ($P = 0.44$).

Frequency of spontaneous bacterial peritonitis

Three patients (9.4%) on NO and four patients on SMZ/TMP (16%) developed SBP, $P = 0.68$. Of these seven patients, four were on secondary prophylaxis and three on primary prophylaxis because of their low protein in ascites and hyperbilirubinemia.

Only in one case, a gram-negative bacteria, namely *Proteus mirabilis*, sensitive to norfloxacin, was isolated in a patient from the SMZ/TMP group.

TABLE 1 – Clinical and laboratory characteristics of patients at admission

	Group 1 (NO, n = 32)	Group 2 (SMZ/TMP, n = 25)	*P*
Sex (M/F)	20/12	18/7	*P* = 0.78
Age (years)	52 (SD = ±14.12)	44 (SD = ±15. 54)	*P* = 0.29
Etiology of cirrhosis			
Alcoholic etiology of liver disease	9 (28.0%)	11 (44.0%)	*P* = 0.11
Others etiologies of liver disease	23 (72.0%)	14 (56.0%)	
Child-Pugh A/B/C	1/10/21	0/8/17	*P* = 0.19
Serum albumin (mg/dL)	2.62 (SD = ± 0.60)	2.58 (SD = ± 0.58)	*P* = 0.82
Serum bilirubin (mg/dL)	4.94 (SD = ± 6.88)	3.53 (SD ± 3.77)	*P* = 0.12
Prothrombin time (s)	17.81(SD = ± 6.34)	17.70 (SD = ± 3.45)	*P* = 0.12
Serum creatinine (mg/dL)	1.76 (SD = ± 2.07)	1.00(SD = ±0.43)	*P* = 0.01
Serum urea (mg/dL)	59 (SD = ± 36)	33 (SD = ±16)	*P* = 0.03
Serum leukocytes (cells/µL)	7064 (SD = ± 653)	8251 (SD ± 1944)	*P* = 0.16
Serum PMN (%)	72 (SD = ±16)	66 (SD = ±12)	*P* = 0.34
Serum Hb (g/dL)	10.17 (SD = ± 2.20)	10.46 (SD = ± 1.82)	*P* = 0.74
Ht (%)	30 (SD = ± 6)	32(SD = ± 5)	*P* = 0.84
Total protein in ascitic fluid (g/dL)	0.96 (SD = ± 0.55)	1.37 (SD = ± 0.84)	*P* = 0.02
PMN in ascitic fluid (cells/mm3)	35.06 (SD = ±55.82)	37.35 (SD = ±44.07)	*P* = 0.84

NO = norfloxacin; PMN = polymorphonuclear leukocytes; SMZ/TMP = sulfamethoxazole/trimethoprim; Hb = hemoglobin; SD = standard deviation; Ht = hematocrit

Extraperitoneal infections

Extraperitoneal infections were diagnosed in 10 patients under prophylaxis with NO (31.3%) and in 6 patients on SMZ/TMP (24%), *P* =0.42.

The most frequent extraperitoneal infection was the urinary tract infection, diagnosed in six patients. On three occasions bacteria were not isolated in the urine culture, but the patients were treated as if they were infected because of the suggestive qualitative test of urine associated with the characteristic clinical picture. Sepsis occurred in four patients using NO, and the presence of skin infections was observed in four patients, three using SMZ/TMP and one NO. Finally, two cases of respiratory infections were recorded, one from each of the groups.

Table 3 shows the distribution of extraperitoneal infections in the groups of patients studied.

TABLE 3 – Extraperitoneal bacterial infections and responsible bacteria in the groups studied

Type of infection	(NO, n = 32)		(SMZ/TMP, n = 25)	
	n	Isolated bacteria	n	Bacteria
Urinary	4	Pseudomonas aeruginosa (n = 1)	2	Not-determined
		Enterobacter cloacae (n = 1)		
		Enterococcus * (n = 1)		
		Not-determined (n = 1)		
Sepsis	4	Non-fermenting Gram bacillus (n = 1)	0	
		Not-determined (n = 3)		
Skin	1	Not-determined	3	Not-determined
Respiratory	1	Not-determined	1	Not-determined
Total	10		6	

NO = norfloxacin; SMZ/TMP = sulfamethoxazole/trimethoprim;
* norfloxacin-resistant
§ P = 0.42

Only one bacterium was detected that was resistant to the antibiotics. It was a NO-resistant *Enterococcus*, isolated in urine culture of a patient receiving preventive treatment with this drug.

Infections in general

Considering both peritoneal (SBP) and extraperitoneal infections, a total of 23 infections were recorded, 13 (40 %) in the NO group and 10 (40%) in the SMZ/TMP group (*P* =1.00).

The time interval between the beginning of the prophylactic treatment and the development of any infection was, in average, 23 days for NO and 64 days for SMZ/TMP, *P* =0.59.

Mortality

The mortality rate was similar in the two groups (P = 1.00), 7 deaths having occurred in the NO group (21.9%) and 5 in the SMZ/TMP group (20.0%). Table 4 shows these data.

TABLE 4 – Mortality and death causes in the groups studied

	Group 1 (NO, n = 32)	Group 2 (SMZ/TMP, n = 25)
Deaths	7	5
Death causes		
Digestive hemorrhage	4	4
Liver failure	0	1
Sepsis	2	0
Other	1	0

NO = norfloxacin; SMZ/TMP = sulfamethoxazole/trimethoprim
* P = 1.00

Renal failure

Considering renal failure as the presence of serum creatinine levels above 1.3 mg/dL, we compared this variable with the main outcomes, thus obtaining the following results: SBP (*P* = 0.68), extraperitoneal infections (*P* = 0.85), infections in general (*P* = 0.52), and mortality (*P* = 0.93).

Adverse reactions

Adverse effects occurred only in patients using SMZ/TMP. There were 5 episodes (20.0%), *P* = 0.01. One patient had skin rash, which disappeared spontaneously, 2 patients complained about epigastric pain, and the remaining 2 showed worsening of the renal function nonattributable to other causes, the drug being discontinued in only one of them (after 60 days of inclusion). While using SMZ/TMP this patient had no infectious process. Preventive treatment was shifted to NO, at a time in which the patient had already completed the research protocol, with good progress at the 305-day follow-up.

DISCUSSION

Bacterial infections are a serious problem affecting patients with liver cirrhosis, as this group is considered extremely susceptible to infections.

Our series is similar to those of SINGH et al.[41] and SORIANO et al.[42], with 60 and 61 patients, respectively. GINÉS et al.[16] included 80 patients and the series of GRANGÉ et al.[17] was larger, with 107 patients.

It should be stressed that, similarly to other studies[41, 42], this work has a selection bias because patients with previous SBP and patients without this complication are gathered noticed in the same sample.

It should also be noted that serum urea and creatinine values were higher in the NO group. At present, five studies[9, 15, 29, 43, 46] have demonstrated the importance of renal function in disease progression and survival of patients with cirrhosis and SBP. Thus, it is possible that the NO group would have a worse prognosis from the beginning.

Although the groups apparently had differences concerning renal function, no impact of the alterations in renal function tests was observed in the follow-up of the patients. Thus, when the effect of renal failure on the outcomes of SBP, extraperitoneal infections, infections in general, and mortality was evaluated, no association was found between renal dysfunction and unfavorable prognosis in these patients.

Another parameter in which the groups differed was the level of total proteins in the ascitic fluid. However, when the discriminative level of 1.0 g/dL was used, the difference disappeared. Thus, the proportion of patients below the cutoff point for a higher likelihood of infection in the ascitic fluid[24, 37] was similar in the two groups.

A common criticism regarding prophylactic efforts, particularly primary ones, concerns the heterogeneity of populations, which present risk factors of different magnitudes, the least significant one being the degree of hyperbilirubinemia. We were aware of the need of delimiting the group in which effectiveness is greater because the risk is higher, but further restricting our inclusion criteria would make the study unfeasible. Consequently, hyperbilirubinemia was chosen to be one of the criteria of inclusion. The value of using total bilirubin levels as an independent predictive factor for the development of SBP has already been demonstrated by ANDREU et al.[2]. In the present study, it should be noticed that bilirubin was the least frequent single indication for prophylaxis, accounting for 8.8% of indications in the NO group and 16% in the SMZ/TMP group.

None of the patients whose indication for prophylaxis was solely related to the bilirubin serum level developed SBP. On the other hand, as expected, the patients in which the risk was better established were those who developed the condition. Four of the seven patients who developed SBP were on secondary prophylaxis and three under primary prophylaxis, and they had both low protein levels in the ascitic fluid and high serum bilirubin.

In the present study, the incidence of SBP was similar in the two groups: 9.4% in the NO group and 16% in the SMZ/TMP one. The frequency of SBP during prophylaxis with NO, ranged from 0% to 35% in several series[13, 16, 17, 32, 42]. For the SMZ/TMP group, the only result available in the literature so far is the one of SINGH et al.[41]: 3%.

In the meta-analysis carried out by BERNARD et al.[3], comparing several treatments, the general incidence of SBP was 9% in the treated group, similar to the 9.4% obtained for NO in the present study.

The most common extraperitoneal infections observed in patients with CLD are urinary, respiratory, and skin infections[5, 13, 36]. The most frequent infection observed in this study was SBP, and the most common extraperitoneal infection was urinary infection as seen in other series of SBP prophylaxis[13, 17, 32, 42]. Even though, it should be noticed that in the NO group, 4 cases of potentially more severe infection occurred – sepsis, with two deaths, comparing to the absence of cases in the SMZ/TMP group. Given the limited number of patients, it is difficult to make further inferences.

Concerning infections in general, we obtained a frequency of 40% in both groups. These results are higher than those reported in the literature[3, 17, 32, 41, 42]. A probable explanation for the higher incidence of infections obtained in our series may be the severity of the liver disease in our patients as compared to those of other studies. Indeed, 66% of all patients were in class C of the Child-Pugh classification. In several studies, this distribution is either not reported[16, 17, 41] or lower[32, 42].

When all cases of infection are considered, we realize that, infrequently, cultures for bacteria were positive, and three of five cases of positivity occurred in urine culture. Of the five bacteria isolated, only two were Gram-positive (*Staphylococcus* and *Enterococcus*), contrary to the expectation of decreased infections by Gram-negative bacteria in SID at the expense of shifting the spectrum of pathogens to Gram-positive ones[22, 32].

The development of quinolone-resistant bacteria, a current concern, was detected only in one case of urinary infection in a patient using NO. Curiously, the causative agent of the infectious process was an *Enterococcus*, a Gram-positive bacterium, even though this phenomenon is more commonly reported in association with Gram-negative bacteria[31]. Anyway, given the number of patients involved, it is hard to make comments about bacterial resistance. As a it is perhaps interesting to restrict primary prophylaxis to a high risk population, as suggested by GUARNER et al.[19].

The groups did not differ in survival, as reported in all other studies of primary and secondary prophylaxis of SBP[16, 17, 35, 41, 42]. For the NO group, mortality was 21.9%. In the literature, when NO was compared to placebo, mortality in NO-treated groups varied from 6.6% to 15%[17, 42]. GINÉS et al.[16] did not evaluate mortality. NOVELLA et al.[32] compared inpatient and continuous SBP prophylaxis with NO, and mortality rates were 30.2% and 23.2%, respectively. The frequency of deaths for the SMZ/TMP group in our study was 20%, whereas in SINGH et al.[41] it was 7%. In the meta-analysis of BERNARD et al.[3], general mortality was 18%, very close to our findings. Only in this study, which included 307 patients from 4 studies, an increased survival with the prophylactic strategy could be detected.

The side effects recorded in our five patients, though of limited repercussion, were restricted to the SMZ/TMP group. Theoretically, because SMZ/TMP is an antibiotic with a higher systemic absorption and a wider spectrum of action than NO, it could predispose patients to more side effects and favor the development of resistant bacteria[18].

From the present study, we conclude that infection in the patient with chronic liver disease remains a challenge to the hepatologist, regardless of the prophylactic efforts made. In the absence of effective non-antibiotic alternatives to prevention of SBP in a population of high risk cirrhotic patients, and taking into consideration parameters of effectiveness and safety, we consider SMZ/TMP to be a viable alternative to NO, with the advantage of being cheaper, something which could improve treatment adherence and extend the benefits of prophylaxis to a larger part of the population.

Alvarez RF, Mattos AA, Corrêa EBD, Cotrim HP, Nascimento TVSB. Trimetoprima-sulfametoxazol versus norfloxacino na profilaxia da peritonite bacteriana espontânea na cirrose. Arq Gastroenterol 2005;42(4):256-62.

RESUMO - ***Racional*** – Devido ao prognóstico sombrio que a peritonite bacteriana espontânea acarreta aos pacientes com doença crônica parenquimatosa de fígado, a prevenção desta condição é fundamental. ***Objetivo*** – Comparar a eficácia da sulfametoxazol/trimetoprima versus norfloxacino para a prevenção de peritonite bacteriana espontânea em pacientes com cirrose e ascite. ***Pacientes e Métodos*** – Cinqüenta e sete pacientes com cirrose e ascite foram avaliados entre março de 1999 e março de 2001. Todos haviam apresentado um episódio prévio de peritonite bacteriana espontânea ou tinham proteína do líquido de ascite ≤1 g/dL e/ou bilirrubinas séricas ≥ 2,5 mg dL. Os pacientes foram randomizados para receber sulfametoxazol/trimetoprima 800/160 mg por dia, 5 dias por semana, ou norfloxacino 400 mg diariamente. O período médio de acompanhamento foi de 163 dias para o grupo norfloxacino, 182 dias para o grupo sulfametoxazol/trimetoprima. Na análise estatística foi considerado um nível de significância de 5%. ***Resultados*** – De acordo com os critérios de inclusão, 32 pacientes (56%) foram tratados com o norfloxacino e 25 (44%) com a sulfametoxazol/trimetoprima. A peritonite bacteriana espontânea ocorreu em três pacientes tratados com o norfloxacino (9,4%), comparado com quatro tratados com a sulfametoxazol/trimetoprima (16%). Infecções extra-peritoniais ocorreram em 10 pacientes recebendo o norfloxacino (31,3%) e em 6 recebendo a sulfametoxazol/trimetoprima (24,0%). Ocorreram sete óbitos entre os pacientes que receberam o norfloxacino (21,9%) e cinco entre os que receberam a sulfametoxazol/trimetoprima (20,0%). No que tange aos efeitos colaterais das medicações, estes só foram observados no grupo da sulfametoxazol/trimetoprima. ***Conclusão*** – A despeito do número de pacientes e do tempo de acompanhamento, a sulfametoxazol/trimetoprima e o norfloxacino foram igualmente efetivas na profilaxia da peritonite bacteriana espontânea, sugerindo que a primeira seja uma opção viável.

DESCRITORES – Peritonite. Cirrose hepática. Ascite. Combinação trimetoprima-sulfametoxazol. Norfloxacino.

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