



Comparison Of Abdominal Puncture And Diuretics During Ascites Treatment

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ABSTRACT:

Introduction

In clinical practice, ascites treatment is, in majority of cases, unsatisfactory and followed by multiple complications. During the therapy, some side effects, in relation to therapeutic method, may occur. The aim of the study was to compare the level of tolerance and effectiveness of ascites therapy in applying abdominal puncture versus diuretics between two groups of patients to establish connection and differences in applied treatments.

Patients and methods. There were 60 patients examined with ascites 3+ and 4+ divided into two equal groups. First group was treated by abdominal puncture several times a week while patients in the other group were administered diuretics either monotherapeutically or in combination. Majority of patients (86.7%) experienced no side effects after applied therapeutic protocol. 6.7% of patients experienced abdominal pain, 3.3% of them had cramps, ailment 1.7% and nausea 1.7% with no statistic difference between two groups of patients ($p > 0.05$). Registered side effects were mild (5%) to moderate (8.3%), while only 1.7% of patients treated by abdominal puncture experienced leaking of ascitic fluid at the puncture site.

Conclusion. No major statistic difference between groups of patients was recorded in relation to side effects and complications in applied ascites therapy ($p > 0.05$). Abdominal puncture and diuretics were both equally well tolerated in hospital conditions. Potential risk in ascites therapy can be reduced to the smallest possible extent by intensive observation of the patient.

Key words: ascites, abdominal puncture, diuretics, effectiveness of therapy

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Introduction

Ascites is considered to be a pathological state where fluid is accumulated in the free abdominal cavity effectuated by various factors. Its constitution may differ depending on the etiology, i.e. the cause of its development. Regardless of its causes, ascites is prevalent world-wide while its incidence marks a significant rise.^{1,2} Etiology of ascites may be classified into conditions in which peritoneum has not

been directly affected and those in which it has been affected by pathological process. In most cases (90%), causes of ascites are liver cirrhosis, malignoma, congestive cardiac insufficiency and tuberculosis.³ According to available scientific sources, 80% patients with ascites in the USA have liver cirrhosis. Malignant disease effectuates less than 10% of ascites causes. Cardiac insufficiency is responsible for less than 5% ascites cases. Ascites may be classified by

its size using the following system: 1+, detected by careful examination only; 2+, easily detected, but is of relatively small volume; 3+, apparent ascites, while not tense; 4+, tense ascites.

The ascites therapy in clinical practice appears to be unsatisfactory in most of cases and it is often followed by numerous complications.^{4,5} The common therapy protocol implies bed rest, sodium uptake restriction as well as diuretics, either individually or in combination thereof. After prolonged application of this medication and poor therapeutic response to it, we choose to apply abdominal puncture. Prolonged use of diuretics implies risk of occurrence of hepatorenal syndrome as well as electrolyte imbalance. Nevertheless, uncontrolled abdominal puncture includes plenty of risks such as infection, renal insufficiency and encephalopathy. Numerous and different problems may arise in ascites therapy. Therefore, controversial attitudes towards comparative advantages and disadvantages of ascites therapy are present.^{6,7}

The objective of this study is to make comparison in clinical conditions between the level of tolerance and effectiveness of ascites therapy through application of abdominal puncture against diuretics in two groups of patients, in order to establish advantages and risks between the applied therapies.

Patients and methods

The clinical tests were performed within the Department of Gastroenterology of the Clinic of Internal Medicine at the University Clinical Center of Banja Luka. The study sample constituted of a group of patients, formed on prospective principle, who were admitted for treatment due to evident ascites in stage 3+ or 4+ accompanied with significant clinical symptoms. 60 patients, who were divided into two identical groups, were tested. The first group of patients (30 patients) was treated with abdominal puncture several times a week up to the point of disappearance of ascites, while the second group (30 patients) was treated with combined application of diuretics.

Immediately upon admission, blood was taken for complete blood count; a detailed physical examination was performed, as well as ultrasonography and esophago-gastroduodenoscopy. Definitive diagnosis of ascites was based on diagnostic abdominal puncture.

The examination protocol was used as the basic methodological instrument having provided data necessary for the clinical tests. All subjective discomforts related to the tests were recorded. Therapy tolerability and effect of therapeutic protocol was observed. Statistical data analysis was made through application of SPSS for Windows 15, 0 program (Chi-square test, Student's *t*-test), while results were presented in tabular and graphical form.

Results

60 patients with ascites were tested. Among the examinees, there were 45 men (75%) and 15 women (25%). The average age of the patients was 56,6 years. In the group of patients who were treated with abdominal puncture, 22 were men (36, 7%), while in the group of patients treated with diuretics, there were 23 men (38, 3%). In the group of patients who were treated with abdominal puncture, 8 were women (13, 3%), while in the group of patients treated with diuretics, there were 7 women (11, 7%). No statistically significant difference was established between patients with regard to the distinction between the two groups defined by sex ($p > 0,05$). The average age of the patients in the group treated with abdominal puncture was 59, while in the group of patients treated with diuretics, it was 58, 3.

Diagnosis of liver cirrhosis was verified as the cause of ascites in almost 88, 3% of cases, while malignant disease was the cause of ascites in 11,7% of cases. In the group of patients treated with abdominal puncture, 24 examinees (40%) had ascites of cirrhosis genesis, while 29 examinees (48,4%) from the group treated with diuretics had liver cirrhosis as the primary diagnosis of disease. In the group of patients treated with abdominal puncture, 6 examinees (10 %) had ascites of malignant genesis, while malignant disease was the cause of ascites in 1 examinee (1,7%). Statistically significant difference between the two groups of patients was established in relation to the cause of ascites ($p > 0,05$). The difference is seen in the fact that, in the group of patients treated with diuretics, there was a greater number of examinees with liver cirrhosis as the cause of ascites. Furthermore, in the group of patients treated with abdominal puncture, a greater number of examinees was the one with ascites of malignant genesis.

Table 1. Distribution of patients regarding discomfort during therapy.

Discomfort during therapy	Group		Total	
	Punctured	Th.with diuretics		
No discomfort	N	27	25	52
	%	45.0%	41.7%	86.7%
Abdominal pain	N	3	1	4
	%	5.0%	1.7%	6.7%
Cramps	N	0	2	2
	%	.0%	3.3%	3.3%
Weakness	N	0	1	1
	%	.0%	1.7%	1.7%
Nausea	N	0	1	1
	%	.0%	1.7%	1.7%
Total	N	30	30	60
	%	50.0%	50.0%	100.0%

The largest percentage of patients underwent the therapy protocol with no discomfort (86,7%), 6,7% patients complained of having abdominal pain, 3,3% patients had leg cramps, weakness was present in 1,7% patients, and 1,7% patients complained of nausea. Table 1. demonstrates no statistically significant difference between groups of patients regarding discomfort arising during the ascites therapy ($p>0,05$).

The degree of discomfort described above was classified as mild to moderate. Out of the total number of examinees, 5% patients classified their discomfort as mild. Moderate discomfort was present in 8% patients, while leakage at the place of puncture was present in 2% patients. The listed discomfort, related to the applied therapy in groups of examined patients, did not require disruption of therapy or their exclusion from the study. The therapy tolerability was very good in 68% patients, it was good in 29% patients, while 3% showed poor tolerance for the applied ascites therapy. Figure 1. shows no statistically significant difference between the groups of patients ($p>0,05$).

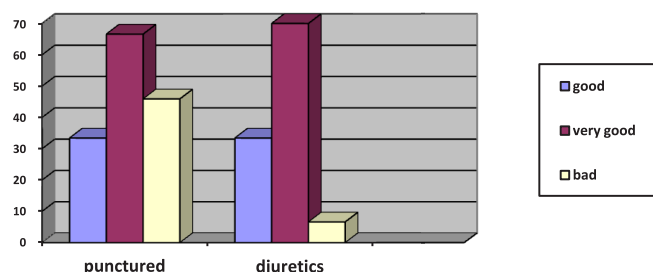


Figure 1. Patients according to their tolerance of the therapy

The effect of the applied ascites therapy was excellent in 33% patients, good in 52%, while in 15% patients, the effect of ascites therapy was assessed as unsatisfactory. The study demonstrated there was a statistically significant difference ($p<0,05$) between the groups of patients in relation to the arising therapy effects (Figure 2.).

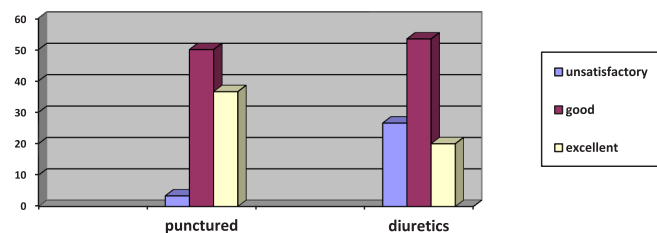


Figure 2. Patients according to the therapy effects

The global assessment of effectiveness of the applied therapy was far better for the group of patients treated with abdominal puncture. 21, 7% patients from the punctured group were assessed to have demonstrated excellent global

effectiveness, which showed significantly larger frequency than in the group of patients treated with diuretics. The groups differed in the category of weak effectiveness as well. More frequently, weak effectiveness of the applied therapy was registered in the group of patients treated with diuretics.

Discussion

Different etiological factors may cause ascites and its incidence may vary depending on the hospital, probably reflecting different population exposure to many agents that lead to the emergence of ascites. Considerable misunderstanding of the severity of the clinical condition is present, so ascites is still being diagnosed and treated by different criteria.

Out of the total number of patients examined, men were predominantly represented while the average age of the patients was 59. Available data in scientific literature confirm predominance of male sex and older age in patients with ascites.⁸

Ascites may be caused by the variety of diseases. However, the study undoubtedly demonstrated predominance of liver cirrhosis as the cause of the disease.⁹

In 88,3% of the examined cases, ascites was caused by liver cirrhosis. The study undoubtedly demonstrated the liver cirrhosis as the dominant cause for ascites emergence. The results of the research are in accordance with the available literature data.¹⁰

Malignant disease is unordinary cause for the ascites emergence, but most of the patients with the ascites related to malignancy live only for a few weeks or months after the start of the emersion. In patients with long history of stable cirrhosis and subsequent development of ascites, the probability for the development of hepatocellular carcinoma in the place of liver cirrhosis should be considered.

In 11.7% of examinees, the cause of the ascites was malignant disease. Distribution of causes of ascites would be different if the examined patients had been from the Departments of oncology, cardiology or pediatrics.^{11,12}

Ascites represents a clinical challenge that we encounter daily. Selection of the optimal treatment of each patient depends on the circumstances that led to the ascites emergence. The therapy requires very careful monitoring of pharmacological treatment with special attention to the balance of body fluids. In this study, ascites was treated by repeated abdominal puncture in the first group of examinees, while the second group was treated by a combined application of diuretics (furosemide and spiro-nolactone).

Certain discomforts related with the applied treatment method may arise during ascites therapy. This study

demonstrated no grave or undesirable effects of the applied therapy that would require disruption of therapy or exclusion from the study. Therapy tolerability was very good in 68% patients, it was good in 29% patients, while 3% patients showed poor tolerance for the applied ascites therapy. There was no statistically significant difference between the patient groups, which supports the fact that both abdominal puncture as well as diuretic therapy are well tolerated in conditions of hospitalization. However, the study demonstrated that there was statistically significant difference between the groups of patients with regard to the effectiveness of therapy. The difference reflects in the fact that the patients from the group treated with abdominal puncture showed significantly smaller percentage of the unsatisfactory effect in gradation. Furthermore, the group of patients treated with abdominal puncture demonstrated significantly larger percentage of the excellence of the effects of the therapy in gradation.

The study presented the assessment of the effectiveness of the applied therapy as superiorly better for the group of patients treated with abdominal puncture. The results of these clinical tests noted abdominal puncture as a quicker and more efficient therapy method, which was confirmed by other authors as well.¹³

Conclusion

There was no statistically significant difference between the groups regarding the level of discomfort and complications of the applied therapy. Abdominal paracentesis achieves an optimal clinical response in therapy of patients with ascites of stages 3+ and 4+.

Adequate knowledge of the etiology of ascites, its early diagnostics and capacities for prevention prove to be of particular importance. Observation of therapeutic recommendations and their application in clinical practice facilitate a more uniform position in ascites treatment.

The authors of this article have not declared any conflict of interest related to this study.

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Komparacija abdominalne punkcije i diuretika tokom terapije ascitesa

SAŽETAK

Uvod. U kliničkoj praksi terapija ascitesa je u većini slučajeva nezadovoljavajuća i često praćena mnogobrojnim komplikacijama. Tokom terapije mogu se javiti različiti problemi u vezi sa primijenjenom terapijskom metodom. Cilj rada je bila komparacija abdominalne punkcije i diuretika kod dvije homogene grupe ispitanika, radi utvrđivanja podnošljivosti i efikasnosti primijenjenog odgovarajućeg terapijskog protokola.

Ispitanici i metode. Ispitivano je ukupno 60 pacijenata sa ascitesom u stadijumu 3+ i 4+, koji su podijeljeni u dvije grupe. Prva grupa je liječena abdominalnom punkcijom više puta nedeljno, dok je druga grupa ispitanika liječena diureticima bilo monoterapijski ili kombinovano. Najveći broj ispitanika (86,7%) je primijenjeni terapijski protokol podnio bez tegoba. Na bolove u truhu se žalilo 6,7% ispitanika, grčeve 3,3%, malaksalost 1,7% i mučninu 1,7% bez statistički značajne razlike između dvije grupe ispitanika ($p > 0,05$). Registrovane tegobe su bile blagog (5%) do umjerenog stepena (8,3%), dok je samo u 1,7% bolesnika iz grupe liječenih abdominalnim punkcijama registrovana komplikacija u vidu curenja ascitesa na mjestu punkcije.

Zaključak. Nema statistički značajne razlike između grupa ispitanika u odnosu na stepen tegoba i komplikacije primjenjene terapije ascitesa ($p > 0,05$). U hospitalnim uslovima abdominalna punkcija i diuretska terapija se jednako dobro podnose. Eventualne potencijalne opasnosti od terapije ascitesa se mogu smanjiti na najmanju moguću mjeru intenzivnim praćenjem pacijenta.

Ključne riječi: ascites, abdominalna punkcija, diuretici, efikasnost terapije