

CLINICAL STUDY:

**THE EFFECT OF ECOMER AS A SUPPLEMENT**  
**PREPARATION IN THE TREATMENT OF URINARY**  
**INFECTIONS**

**ECOMER – Background**

Ecomer is a specific preparation of alkylglycerols isolated from shark liver oil, intended for improvement of the body immune system.

Treatment by shark liver oil has a long tradition in the Scandinavian and Far East countries. It was used in folk medicine in the Scandinavian countries for treatment of various diseases such as swollen glands, insect bites, rachitis, flat feet, wound healing etc. In Japan shark liver oil was a strictly kept secret for the vitality and liveliness of Shoguns and their samurai warriors.

The oil used to be sold in pharmacies throughout Norway. With the advancement of modern medicine, the significance of this oil in treatment diminished, so that it almost completely disappeared at end of the 19th and beginning of the 20th century until the 60-ties of the 20th century, when Dr. Astrid Brohult rediscovered it in her wish to help her young patients, suffering from leukemia. She discovered that the active substances which lead to the improvement of the leucocyte status are actually alkylglycerols. While looking for the greatest source of alkylglycerols in nature, she rediscovered shark liver oil. In her doctor's thesis in 1963 she showed how alkylglycerols help in the reduction of harmful effects of radiotherapy given to patients suffering from uterine cervix cancer. A significant contribution in further research was made by Prof. Ingemar Joelsson, who used alkylglycerols in the Gynecology Department of Karolinska Institute in Stockholm and in the clinic at Umea University. Also, Prof. Ingemar Naslund, head of the Radiology in the Oncology Department of Karolinska Institute studied the effect of alkylglycerols on breast cancer. Ecomer was used successfully in Poland in the treatment of prostatic cancer.

Although shark liver oil has many useful substances, only alkylglycerols are present in Ecomer and that means the most potent, selected according to their concentration in mother's milk. The purification process itself is standardized according to the principles of good clinical practice. The amount of alkylglycerols is the same in each capsule. Ecomer is free of impurities, chemicals, DDT, PCB heavy metals, it does not undergo any chemical changes, which is due to a physical process called molecular distillation. No adverse effects have been reported, nor allergic manifestations, so it can be used continuously long-term. It can also be used by children.

Ecomer is used in the prevention of viral infections as an immune booster, for wound healing, prevention of harmful effects of radiotherapy and chemotherapy, as well as ancillary therapy in tumour treatment.

## **ECOMER and Infectious Conditions**

Ecomer (alkylglycerols) are natural immune boosters, which have an effect on the recovery of the body defense system.

Ecomer(alkylglycerols) have two basic effects:

1. immune boosting effect
2. immune modulating effect

Ecomer improves the immune system, by normalizing the leukocyte number and function (so-called cellular immunity) and secretion of various substances – antibodies (so-called humoral immunity). The activation of lymphocytes within cellular immunity is responsible for the fight against viruses, whereas the activation of granulocytes (segmented leukocytes or polymorphonuclears) is responsible for the fight against bacteria. The humoral immunity helps in this process through an increase of the concentration of antibodies in blood. Ecomer has an anti-bacterial effect (similar to Nitrofurantoin) against the most frequent bacteria: *Streptococcus pneumoniae*, *Streptococcus pyogenes*, *Streptococcus viridans*, *Staphylococcus pyogenes*, as well as *Corynebacterium hoffmani*. It also has an antimycotic effect, particularly on *Candida Albicans*. Considering its stimulative effect on the immune system, Ecomer is recommended for maintenance of strong immunity and disease prevention and in cases of disease conditions, Ecomer is recommended as an adjuvant to prescribed therapy.

## **INTRODUCTION**

The frequency and incidence of infectious diseases increases in modern age every year and one of the leading groups in this field are certainly urinary infections. The characteristics of modern urinary infections are greater contagiousness, greater resistance to antibiotics, as well as the duration itself of infections, which has been increased significantly with respect to the period of the end of last century.

The World Health Organization has included improvement of the quality of life as one of the primary goals in the 21st century and infections, both acute and chronic, decrease significantly the quality of life of people.

Also, it is a primary task to promote health education of all ages and to stress primary health care in the sense of prevention of infections in general, however, once we are faced with such conditions, serious measures should be undertaken both within secondary health care (curative) and tertiary (rehabilitative).

## **AIM OF THE WORK**

Considering the current frequency of urinary infections, we have defined the following aims and hypotheses for our work:

1. to determine which are the predilection, risk groups for the occurrence of urinary infections
2. to analyze the effect of the adjuvant therapeutic preparation ECOMER on the results of treatment based on an adequate antibiotic therapy.
3. to propose measures for secondary health care with the use of this preparation as an adjuvant to antibiotic therapy.

## **HYPOTHESIS**

Our work hypothesis was that ECOMER has a positive synergy effect on antibiotic therapy (following the antibiogram) for urinary infection treatment and that it speeds up and improves treatment of such patients.

## **METHOD OF WORK**

The study was of prospective character and covered 100 patients with urinary infection. Patients were selected for the study by random choice, in the order as they came to the Clinical Center of Serbia to the Urology Clinic and according to diagnosed urinary infection.

The study lasted five months in the period from August to December 2008. There were more patients at the beginning of the study, but the number of those who were included in the study was limited to 100, because it was not possible for us to follow-up all patients, some decided to drop out, some did not come for control check ups, so that the final number of those for whom we had complete records was reduced to a total of 100.

Patients were divided into two groups immediately after diagnosed urinary infections, according to the following criterion. The aim of the study was presented to all patients, as well as our work hypothesis. We made sure to explain to each patient the effect of ECOMER and to stress that the preparation was absolutely unharmed. We were guided by the strict medical slogan "Primum non nocere" (First, do no harm).

Patients who agreed to take Ecomer as an adjuvant to the antibiotic treatment, were the experimental group, and those who did not wish to take it and who were only undergoing antibiotic therapy, were the control group.

50 patients from each group, selected randomly as we collected data, entered the study

## **CLINICAL METHODOLOGY**

Having been diagnosed urinary infection all patients were made an antibiogram and were prescribed an adequate antibiotic. In the experimental group also Ecomer in the dose of 3 x 2 capsules. The patients were followed up for 2 months. Each patient had a total of 6 analyzed urine cultures, which practically meant one every 10 days and we compared the intensity in which germs disappeared in these two groups and whether they had fully recovered in this period.

## **STATISTIC METHODOLOGY**

The following elements were followed up: sex, age, type of cause, time of achievement of sterile urine culture.

All collected data were statistically processed by modern methods of descriptive and analytic statistics with the support of the software package SPSS 17.0 for Windows.

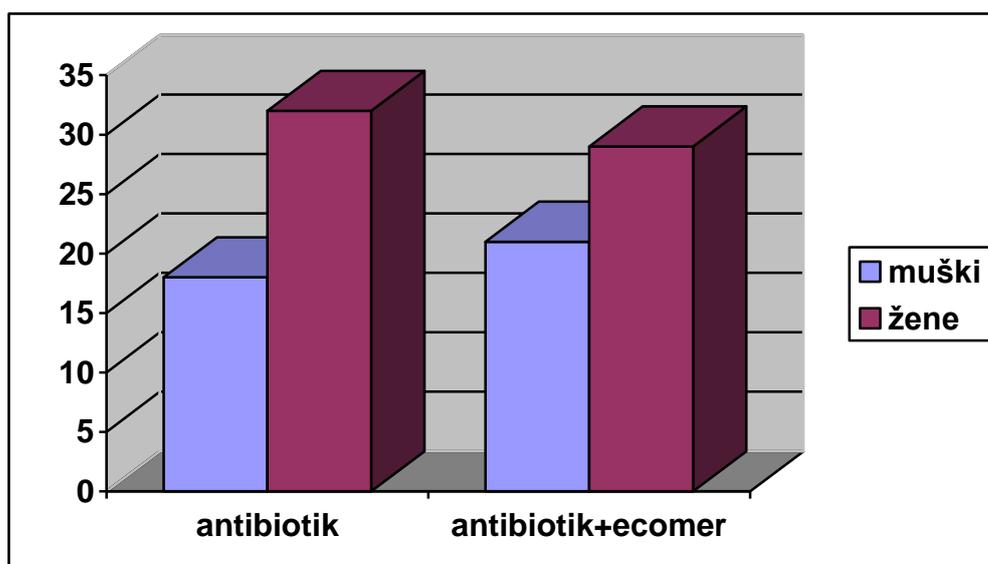
## WORK RESULTS

The structure by sex was followed in both groups of 50 patients each. The frequency distribution by sex was tested by the Chi-square test and the difference was not statistically significant  $p > 0,05$ . The groups were similar and a priori comparable by sex.

Female patients dominated in both groups, who have also been described in literature as having more frequently urinary infections, so that this is in agreement with our series.

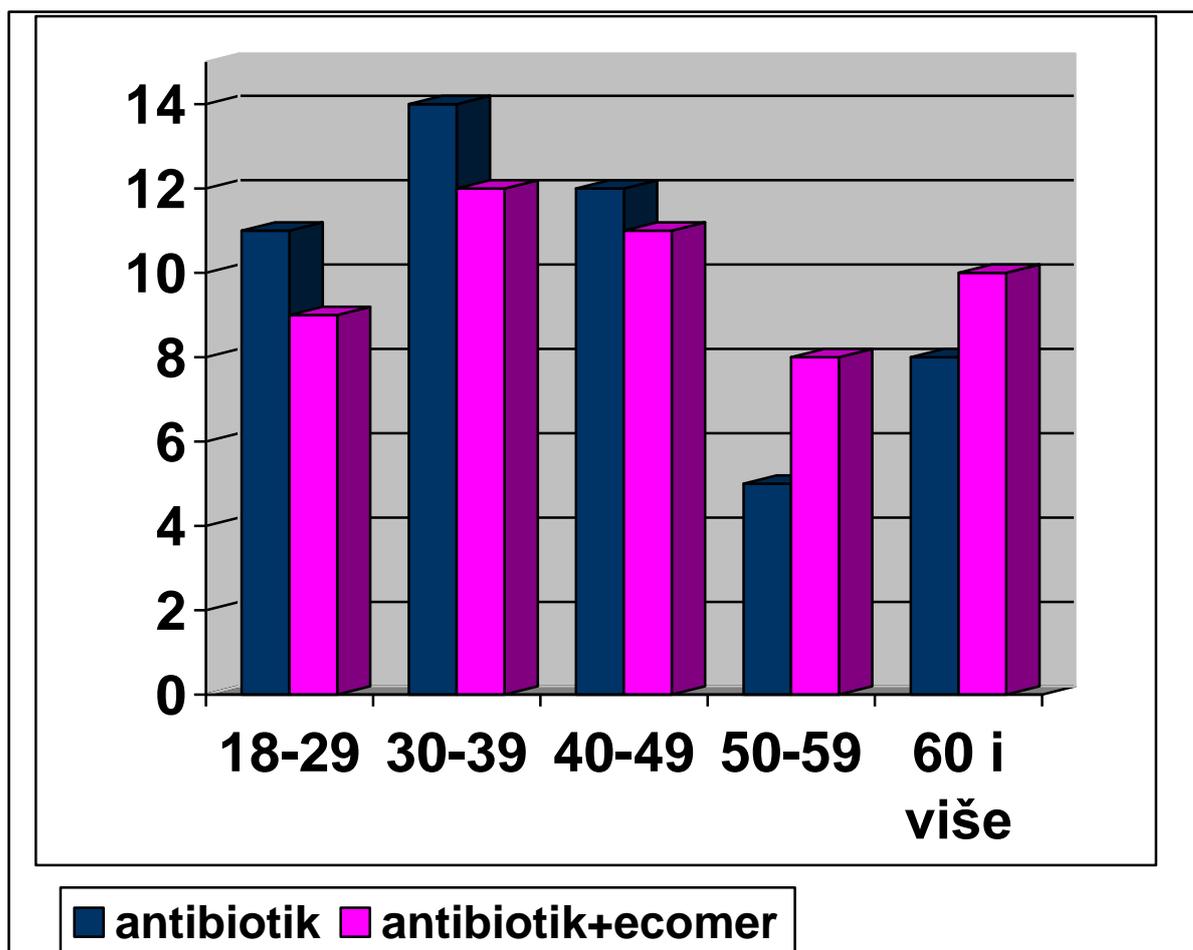
This difference by sexes originates from the very difference in the anatomy of the male/female urogenital apparatus.

Group	sex		total
	male	female	
Antibiotic	18	32	50
Antibiotic+Ecomer	21	29	50
total	39	61	100



The study was done only with adult persons and the distribution by age in the groups is given in the following table and graph, tested statistically with the aid of T-test. The difference was not statistically significant  $p > 0,05$  and the groups were also comparable by age.

Group	Age					total
	18-29	30-39	40-49	50-59	60 and above	
Antibiotic	11	14	12	5	8	50
Antibiotic + Ecomer	9	12	11	8	10	50
total	20	26	23	13	18	100



We also followed in both groups separately the frequency of the different causes of urinary infections and compared these frequencies by the method of the Chi-square test. The difference by type of cause between the groups was not statistically significant  $p > 0,05$ .

The groups were also similar and a priori comparable by this variable, so that the therapeutic effect, if we notice it as different in further investigation, is only due to the effect of antibiotic therapy combined with Ecomer.

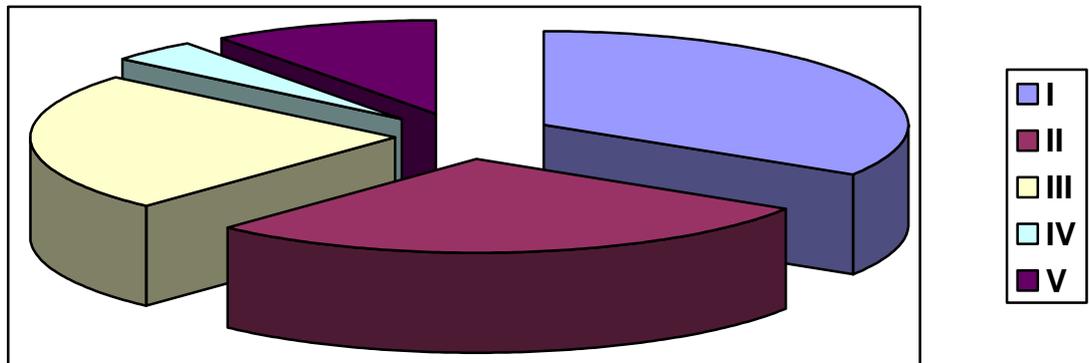
The most frequent causes of urinary infections are :

1. E. Colli
2. proteus
3. staphiloccocus
4. others
5. combination (several isolated causes)

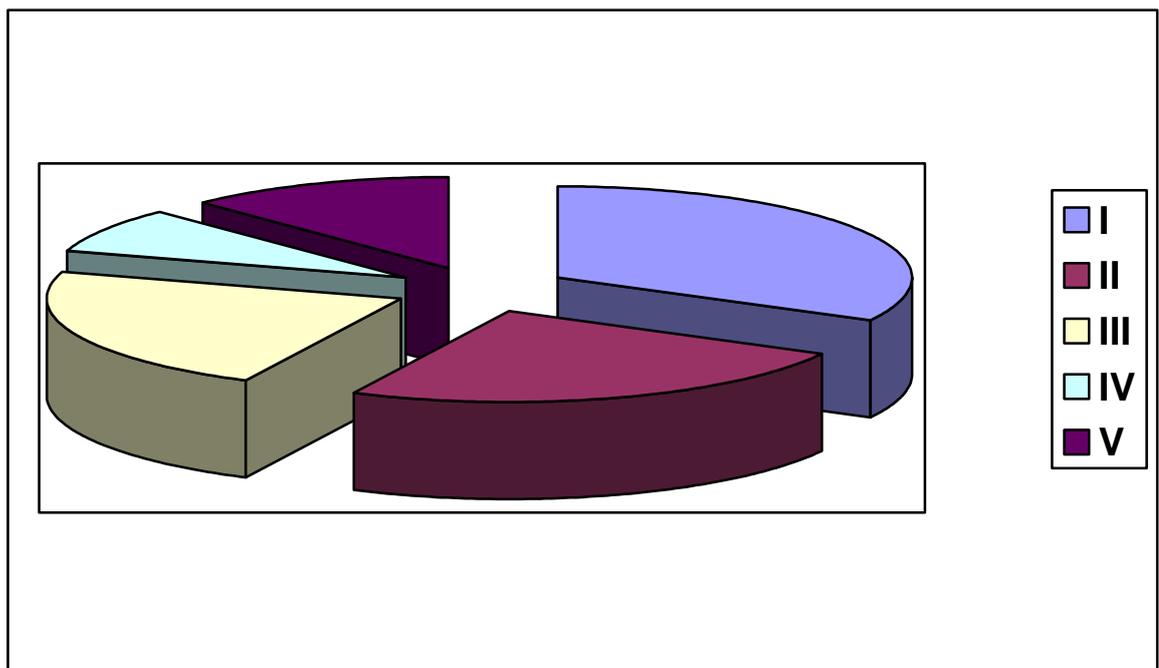
so we also followed their frequency by groups

<b>Group</b>	<b>cause</b>					<b>total</b>
	<b>I</b>	<b>II</b>	<b>III</b>	<b>IV</b>	<b>V</b>	
<b>Antibiotic</b>	<b>17</b>	<b>14</b>	<b>12</b>	<b>2</b>	<b>5</b>	<b>50</b>
<b>Antibiotic+ Ecomer</b>	<b>16</b>	<b>12</b>	<b>11</b>	<b>4</b>	<b>6</b>	<b>50</b>
<b>total</b>	<b>33</b>	<b>26</b>	<b>23</b>	<b>6</b>	<b>11</b>	<b>100</b>

Group: Antibiotic



Group: Antibiotic + Ecomer



One of the main hypotheses of our work was that patients who take Ecomer as an adjuvant to antibiotic therapy have a faster and more efficient elimination of germs. A urine culture was analyzed for each patient separately every ten days, so that each patient was monitored 6 times.

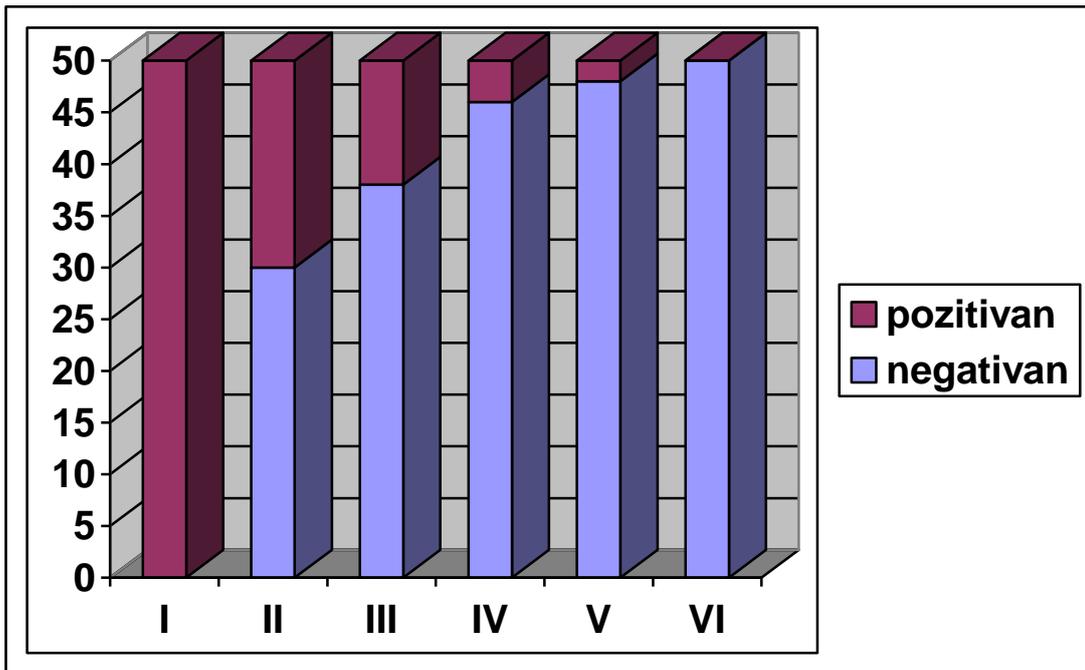
We tested these results with the aid of nonparametric analysis of variance for repeated measurements by Cochran test, where the resulting variable was of dichotomous character: urine culture positive (+) or negative (-). The difference by groups was statistically significant  $p < 0,05$  in favour of the group which had the antibiotic and Ecomer therapy. The result of the urine culture of these patients was sterile after third urine culture on the average, there were minor exacerbations, i.e. repeated germs in urine culture.

In the case of the patients of the second, control group, who had only undergone antibiotic therapy, the treatment time until the first sterile result was after fourth urine culture on the average, and it was found, although not to a significant extent, that the treatment until complete elimination of germs took longer time for them.

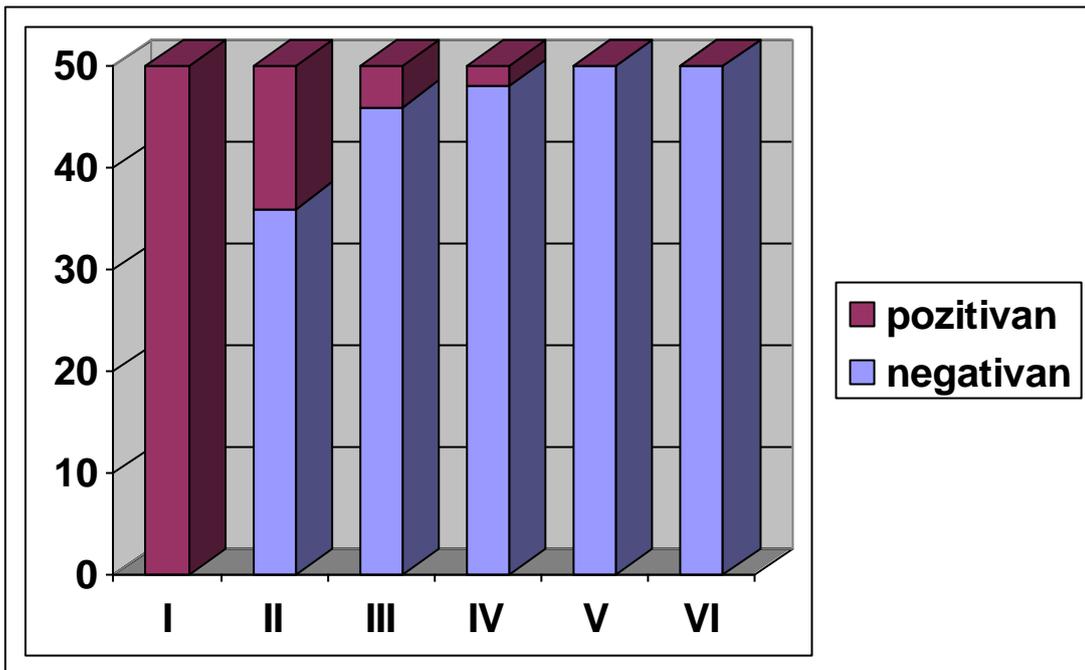
Group	Urine culture results	urine culture					
		I	II	III	IV	V	VI
Antibiotic	pozitive	50	20	12	4	2	0
	negative	0	30	38	46	48	50
	total	50	50	50	50	50	50
Antibiotic + Ekomer	pozitive	50	14	4	2	0	0
	negative	0	36	46	48	50	50
	total	50	50	50	50	50	50

We have presented the results for each group separately in the following diagrams:

Group: Antibiotic



Group: Antibiotic + Ecomer



## CONCLUSION

Considering the unharfulness (safety) and absence of limitations in the use of ECOMER preparation as well as the proven synergy effect, the recommendation is to use ECOMER in the therapeutic dose of 3 x 2 capsules with the targeted antibiotic therapy in the infections of the urinary system in the aim of faster recovery.