

# ENKORTEN® - A New Option in Treatment of MS - Influence on EDSS -



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## Enkorten®

Enkorten® is combination of two neuropeptides that participate in modulation of immunological processes:

- 1-5 adrenorphin (acetate).....5 mg
- ACTH 1-13 (acetate) (alpha 1-13 corticotropin)..... 1 mg

Immunomodulation using peptides is based on two approaches: 1) blocking of initial activation of antigen recognition of autoreactive T cells and 2) down regulation of specific antigenic inflammatory response of T cells through activation of regulatory physiological pathways.

ACTH 1-13 down regulates the production of proinflammatory and immunomodulating cytokines (IL-1, IL-6, THF- $\alpha$ , IL-2, IFN- $\gamma$ , IL-4, IL-13). Also, ACTH 1-13 up regulates production of IL-10 known to reduce proinflammatory cytokine production directly having anti-inflammatory effects.

The effect of both peptides includes analgesia, antipyretic, antioxidant and anti-inflammatory effects without side effects related to steroid and non-steroid anti-inflammatory drugs<sup>1,2</sup>.



## Objectives

Objectives of the phase II clinical trial were to evaluate the efficacy and safety of Enkorten® in the treatment of relapse-remitting (RR) MS.

- |                                |                          |
|--------------------------------|--------------------------|
| 1) Efficacy                    | 2) Safety                |
| MRI T1 active lesions (number) | blood and urine analysis |
| MRI T2 lesions (number)        | adverse events           |
| EDSS score                     |                          |
| Mean number of relapses        |                          |
| Relapse-free time              |                          |

The clinical phase II was carried out between Nov 2005 - May 2007 at the Clinic of Neurology, Clinical Center, University of Sarajevo, Bosnia and Herzegovina. The study was an open, prospective and comparative study lasting for 12 months.

## Patients

- Suffering from RR-MS
  - 25 patients received Enkorten®
  - 26 patients in control group
- EDSS (Expanded Disability Status Score) 0 do 5.5

Table 1. Demographic details and clinical parameters at baseline in patients suffering from RR-MS

	Enkorten®	Control
Age (yrs)	42.2	40.7
F:M	15:10	21:5
BMI (Body mass index)	24.2	23.4
EDSS	3.5*	2.5
T1 MRI lesion (no)	1.12	0.60
T2 MRI lesion (no)	41.83	33.81

\* p=0.01; Mann-Whitney U Test

## Enkorten® reduced disability level

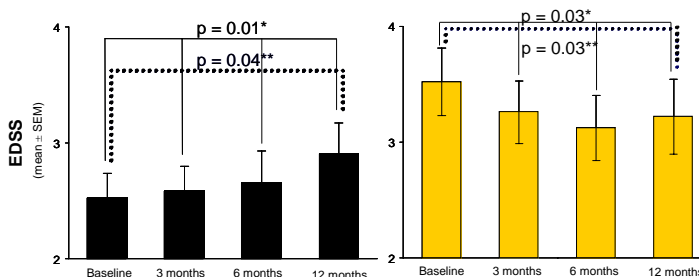


Figure 1. EDSS in RR-MS patients in control (■; n=26) and experimental group (■; n=25) at baseline and after 3, 6 i 12 months of clinical phase II trial (\* Friedman test; \*\* Wilcoxon Signed Ranks Test)

## Enkorten® Reduced Number of MRI Lesions

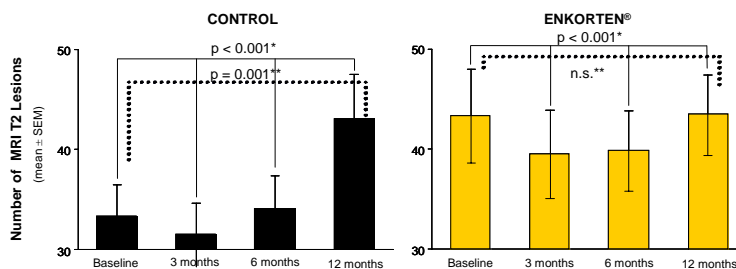


Figure 2. Number of T2 MRI lesions in RR-MS patients from control (■; n=26) and experimental group (■; n=25) at baseline and after 3, 6 i 12 months of clinical phase II trial (\* Friedman test; \*\* Wilcoxon Signed Ranks Test)

## Conclusions

Enkorten® demonstrated statistically significant efficacy in modification of natural course of disease through reduction of disability level as measured by EDSS scale and reduction in number of MRI lesions during the 12 months of Enkorten® application.

Enkorten® showed statistically significant reduction in relapse rate. 72 % of patients was without relapse during the 12 months of the study in the experimental group, compared to 42.3% in the control group. Time to first relapse was significantly longer in patients that received Enkorten® compared to patients from the control group.

Enkorten® was used as a treatment for relapses during the study in the patients from the experimental group. Enkorten® has demonstrated its ability as a treatment that can be successfully used as a substitution for corticosteroid pulse therapy during the relapses with significant reduction in duration of these relapses and absence of adverse events that usually accompany corticosteroids. Enkorten® accomplished 100% substitution of corticosteroid pulse therapy in all patients requiring treatment.

Enkorten® has shown remarkable safety profile with no severe adverse events being reported during 1 year of Enkorten® application.

## Literature

- 1) Konjevoda et al., *J Physiol – Paris*, 95, 2001, 277-281
- 2) Konjevoda et al., *Period Biol*, 106, 2004, 355-359