

**Conclusion:** Biopharmaceutical research showed a high bioavailability of active substances, which proves the adequate selection of dosage form and correct pharmacotechnologic processes. Preclinical and clinical studies have shown that Neamon-hepa, capsules can be used in the treatment of chronic viral hepatitis and liver cirrhosis. The drug has a polyfunctional action and a spectrum of activity that is intended to provide a multidirectional therapeutic complex effect.

**Key words:** cirrhosis, alkaline phosphatase, lactatdehydrogenase.

## CAPILLARY ELECTROPHORESIS METHOD FOR MONITORING DONEPEZIL HYDROCHLORIDE IN PLASMA OF PATIENTS TREATED FOR ALZHEIMER'S DISEASE

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**Introduction:** Donepezil is a prescription drug to treat mild, moderate, and severe stages of Alzheimer's disease. By its selective and reversible inhibition on acetylcholinesterase especially in the brain, the peripheral effects are minimal. These aspects together with its lack of hepatotoxicity represent the advantages of using donepezil towards other drugs, becoming the first line therapy for this pathology. The secondary effects involve muscarinic cholinergic symptoms (nausea, vomit, diarrhea), as well as nicotinic N<sub>1</sub> (insomnia) and N<sub>2</sub> (muscular cramps).

**Aim:** The paper aims to find and validate a sensitive method for the assay of donepezil in plasma using a non-aqueous capillary electrophoresis method.

**Materials and methods:** Donepezil hydrochloride (PhEur.), methanol (HPLC isocratic grade), acetonitrile (HPLC grade), hexane and ammonium acetate of analytical purity were bought from Sigma, human plasma was obtained from the Haematological Institute in Bucharest. Agilent AG1610 capillary electrophoresis with diode array detector was used as main analytical instrument. Human plasma samples spiked with known amounts of donepezil were used for the bioanalytical validation of the method, which was performed according to the EMA guidelines. The method was also tested on real samples for patients treated with donepezil.

**Results:** The non-aqueous capillary electrophoresis method for the donepezil assay in plasma was performed using as a running buffer a mixture of methanol: acetonitrile (70:30) with 15 mM ammonium acetate, a silica PVA coated capillary (64 cm length, 50µm i.d.), 10 minutes 50 mbarr hydrodynamic injection, 30kV applied voltage; detection was performed at 315 nm (which lacks spectral interference of proteins), but the 268 and 220 nm wavelengths were also monitored. The sample were extracted with hexane from alkalized 1:10 diluted plasma, dried under nitrogen flow, and then re-dissolved in a small amount of mobile phase. Limit of detection obtained was 0.5 µg/mL.

**Conclusions:** The method is sensitive and can be applied to monitor donepezil hydrochloride plasma levels in patients treated for Alzheimer's disease.

**Keywords:** donepezil hydrochloride, plasmatic level, non-aqueous capillary electrophoresis, therapeutic monitoring.