STUDY OF THE INTESTINAL ABSORPTION OF TRIAMTERENE IN RATS.

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The aim of the work was to study the intestinal absorption process of triamterene (T) in rats. T is currently used as a diuretic in therapeutics and have a low bioavailability probably due to its low solubility¹. This study intends to go insight the absorption mechanism of T to find other possible causes to its bioavailability problems.

$\sqrt{}$ Materials and Methods

The concentration dependence was studied by perfusion of three different concentrations of T ranging from 0.08µg/mL to 8 $\mu g/mL,$ using an intestinal in situ perfusion technique performed in ra.t². The proton dependence was comparing checked by the absorption rate constants, k, at pH=5.00 and pH=7.00. The solutions where perfused in the whole intestine of the anesthesized rats and samples of the luminal content were taken every 5 minutes over a period of 30 minutes. k_a was calculated in every condition by non linear regression of the remaining concentration of T in lumen versus time. Inhibition studies were performed using Verapamil HCI (4mM, V), a mixed inhibitor of Pglycoprotein (pgp) and Multidrug Resistance-Associated Protein

$\sqrt{}$ Results and Conclusions

The absorption rate constant of triamterere in each condition are listed in Table 1 and graphically outlined in Figure 1 for better comparison.

Triamerene	k _a (SD), h ⁻¹	
concentration	pH 5.00	pH 7.00
(µg/ml)	•	
0.08	0.85(0.21)	0.94(0.22)
0.08 + 4mM V		1.37(0.32)
8	0.48(0.18)	0.98(0.48)

bettersignificant) in ka that might suggest
the influence of an efflux system
for which V is not specific.D), h-1The simultaneous presence of an
active absorption process and an
efflux system could mask the

produces

and inhibitor.

Further studies are therefore necessary in order to characterize the kinetics of the process.

possible effects of concentration

When the physiological pH (7.00) is used there are no statistical

differences between k. In these

increase

conditions, the presence

an

√ Acknoledgements

Ana Ruíz-García and Gloria Sánchez-Castaño are granted Ph.D. Students of MEC-Spain.

√ References

¹ Kapoor V.K. Analytical profiles of drug substances and excipients. Vol.23: 571-605

² Merino, V., J. Freixas, M. V. Bermejo, T. M. Garrigues, J. Moreno and J. M. Plá-Delfina. 1995. J. Pharm. Sci. 84:777-782.



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Triamterene concentration (µg/mL)

demonstrate a significant decrease in k_a when the concentration increases. This results indicate that there is probably an active absorption process, mediated by a H+ dependent carrier.