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Review Article

DEXRABEPRAZOLE: A NEW EMERGING APPROACH IN TREATMENT OF GIT DISORDER

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ABSTRACT
Dexrabeprazole [R(+) rabeprazole] is a novel proton-pump inhibitor which is used in treatment of acid peptic diseases, gastroesophageal reflux disease (GERD) maintenance therapy, erosive esophagitis, short-term treatment of active duodenal and zollinger-ellison syndrome and treatment of H.Pylori-induced ulcers. This review explains superiority of dexrabeprazole (at half the recommended rabeprazole dose) over rabeprazole in terms of favourable pharmacokinetics, more efficacy, longer half-life, better healing of esophagitis, and fastly symptom control.
KEYWORDS: Dexrabeprazole, peptic diseases, rabeprazole.

INTRODUCTION

All currently available proton pump inhibitors are substituted benzimidazole pro-drugs and chiral compounds. Rabeprazole is an inhibitor of the gastric proton pump. It causes dose-dependent inhibition of acid secretion and has a more rapid onset of action than omeprazole. Rabeprazole is mainly reduced *via* the non-enzymatic pathway to rabeprazole-thioether. It is available as a racemic mixture of two isomers - R (+)-isomer (Dexrabeprazole) and S (-)- isomer in 1:1 proportion.[1]

Chemically, dexrabeprazole sodium is R (+)-isomer of rabeprazole (2-[[[4-(3-methoxypropoxy)-3-methyl-2-pyridinyl]-methyl] sulfinyl] 1H-benzimidazole). It belongs to a class of antisecretory compounds that do not exhibit anticholinergic or histamine H_2 receptor antagonist properties, but suppress gastric acid secretion by inhibiting the gastric H + /K + ATPase at the secretory surface of the gastric parietal cell. Because this enzyme is regarded as the acid (proton) pump within the parietal cell, therefore it has been characterized as a gastric proton pump inhibitor.[2]

The efficacy of 10 mg dexrabeprazole daily is equivalent to that of 20 mg rabeprazole daily in relieving symptoms of GERD. This implies that 10 mg dexrabeprazole daily is potent and sufficient enough to block the maximum amount of proton pumps, thus precluding the need to use higher doses as has been suggested with rabeprazole.[3]It is not an official drug in Pharmacopoeias. It has been estimated by spectrophotometery[2] and HPLC[4] in combination with domperidone.

ESTIMATION OF DEXRAPEBRAZOLE

Simultaneous spectrophotometric estimation of dexrabeprazole and domperidone in capsule dosage form:

Three UV spectrophotometric methods for the simultaneous determination of dexrabeprazole and domperidone, in capsules were developed by *Chitlange S S et al(2010)*[2] . Method I is simultaneous equation method, wavelength selected were 258.5 nm (λ_{max} for dexrabeprazole) and 286.5 nm (λ_{max} for domperidone). Method II involves multicomponent mode of analysis, wavelength selected are 258.5 nm (λ_{max} for dexrabeprazole) and 286.5 nm (λ_{max} for domperidone). Method III is area under curve method, wavelength range selected are 263.5-253.5 nm for dexrabeprazole and 291.5-281.5 nm for domperidone respectively. All the methods were found linear between 5-35 µg/ml for dexrabeprazole and 10-70 µg/ml for domperidone. The accuracy and precision of the methods were determined and validated stastically which showed no significant difference between the results obtained by the three methods.

A validated RP-HPLC method for simultaneous estimation of dexrabeprazole and domperidone in pharmaceutical dosage form

A RP-HPLC method were developed by Chitlange S S et al(2010)[4]. Chromatography was carried out on a C-18 column (4.6 mm × 250 mm, 5 µm) using acetonitrile: 0.025 M potassium dihydrogen orthophosphate buffer (pH adjusted to 5.1 with triethylamine) in the ratio of 30:70 (v/v) as the mobile phase at a flow rate of 1.0 mL/min and eluents were monitored at 284 nm. The calibration curves were linear over the range of 10 – 50 µg/mL for dexrabeprazole and 20 – 100 µg/mL for domperidone. The average retention time of dexrabeprazole and domperidone was found to be 9.28 min and 6.66 min respectively. The results of the analysis have been validated statistically and by recovery studies.[4]

CONCLUSION

This review compiles data on dexrabeprazole which is more effective in GIT complications than rabeprazole. No more research is carried out on dexraberazole, only spectrophotometric and HPLC methods in combination with domperidone have been reported. So various other analytical estimation techniques should required which would be give very useful information about dexrapebrazole alone and its combinations with other drugs.

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