

Simple Method of Extraction and Determination of Doxazosin Mesylate in Human Plasma by High – Performance Liquid Chromatography with Fluorescence Detector

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ABSTRACT

A simple, selective, sensitive and precise reversed-phase high-performance liquid chromatographic (RP-HPLC) method has been developed for the determination of doxazosin mesylate in human plasma. Diazepam was used as an internal standard. The simple extraction method utilized protein precipitation with acetonitrile for sample preparation. Good chromatographic separation was achieved by using ODS hypersil (5 μ m, 125 x 4.0 mm) column and a mobile phase consisting of acetonitrile : 10 mM ammonium acetate (40:60) at a flow rate of 1.0 ml/min. Doxazosin mesylate and diazepam were detected with fluorescence detector at Ex = 246 nm, Em = 376 nm. No endogenous substances were found to interfere. Linearity range for doxazosin mesylate was 1.0–50.0 ng/ml. The coefficient of variation (%CV) for intra – day and inter – day precision were less than 4.0 and 5.9 % respectively , at all concentration levels while the intra–day and inter – day accuracy ranged from 97.47–110.67 % at all concentration levels. This analysis method was successfully used in pharmacokinetic and bioequivalence study of doxazosin mesylate in healthy volunteers.

Key words: Doxazosin mesylate, Pharmacokinetics, Plasma analysis, HPLC, Determination

INTRODUCTION

Doxazosin mesylate is a quinazoline-derivative postsynaptic α_1 -adrenergic blocking agent. The drug is chemically and pharmacologically related to prazosin and terazosin. On a weight basis, the postsynaptic α_1 -adrenergic blocking potency of doxazosin mesylate is half of that of prazosin and the α_1 -receptor selectivity is one-fourth of that of terazosin when tested in human postate adenoma.

Doxazosin mesylate reduces peripheral vascular resistance and blood pressure as a result of its vasodilating effects, the drug produces both arterial and venous dilation. Doxazosin mesylate reduces blood pressure in both supine and standing patients, the effect is most pronounced on standing blood pressure and postural