UPLC ï MS-MS Method for the Determination of Vilazodone in Human Plasma: Application to a Pharmacokinetic Study

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Abstract

A sensitive, rapid and simple liquid chromatographic-electrospray ionization tandem mass spectrometric (LC-ESI-MS-MS) method was developed for the quantitative determination of vilazodone in human plasma and for the study of the pharmacokinetic behavior of vilazodone in healthy Egyptian volunteers. With escitalopram as internal standard (IS), liquid-liquid extraction was used for the purification and preconcentration of analytes from human plasma matrix using diethyl ether. The separation was performed on an Acquity UPLC BEH shield RP C18 column (1.7 Õm, 2.1 Ĭ 150 mm). Isocratic elution was applied using methanol-0.2% formic acid (90:10, v/v). Detection was performed on a triple-quadrupole tandem mass spectrometer with multiple reaction monitoring mode via an electrospray ionization source at m/z 442.21 Ÿ 155.23 for vilazodone and m/z 325.14 Ÿ 109.2 for escitalopram. Linear calibration curves were obtained over the range of 1-200 ng/mL with the lower limit of quantification at 1 ng/mL. The intra- and inter-day precision showed relative standard deviation Ò3.3%. The total run time was 1.5 min. This method was successfully applied for clinical pharmacokinetic investigation, and a preliminary metabolic study was also carried out.

J Chromatogr Sci 2016, May