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Analytica-2015: Determination of amlodipine in human plasma by liquid chromatography–tandem mass spectrometry and its application to pharmacokinetic & bioequivalence studies - Syed N Alvi - King Faisal Specialist Hospital & Research Centre

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A rapid Liquid Chromatographic-Tandem Mass Spectrometric (LC-MS/MS) assay for the measurement of amlodipine level in human plasma was developed and validated. Amlodipine and tizanidine (IS) were extracted from plasma using mixture of dichloromethane and tertiary butyl methyl ether (1:3, v:v) and reconstituted with 100 µl mixture of methanol and water (1:1, v:v). The mobile phase consisted of acetonitrile and 0.1% formic acid (80:20, v:v). Analysis was performed at room temperature using a reversed phase Atlantis dC18 (2.1x100 mm, 3 µm) column. The components of interest were detected in the positive ion mode of electrospray ionization using transition 409.8 → 238.4 and 254.3 → 43.9 for amlodipine and the IS, respectively. The relationship between amlodipine concentration in plasma and peak height ratio of amlodipine to IS was linear ≥0.9868 in the range of 0.2–20 ng/ ml; intra and inter-day accuracy between 101-114%, and coefficient of variations were ≤14.4%. The quantification limit of amlodipine in 0.5 ml plasma was 0.2 ng/ml and the detection limit was 0.1 ng/ml. The method was successfully validated and applied in a bioequivalence study of four tablet formulations of amlodipine.

Polypill is a fixed-portion blend that contains at least three dynamic fixings utilized as a solitary day by day pill to accomplish a huge impact in forestalling cardiovascular infection with negligible unfavorable impacts. A tale and exact fluid chromatography pair mass spectrometry strategy utilizing electrospray ionization mode has been created and approved for the synchronous assurance of amlodipine (AMD), valsartan (VAL) utilizing losartan (LOS) as an inward norm (IS), and hydrochlorothiazide (HCT) utilizing furosemide (FSD) as a May be. The partition was carried on Aquasil C18 (50 mm×2.1 mm, 5 µm) turned around stage section utilizing acetonitrile and water containing 0.1% formic corrosive (50:50, v/v) as the portable stage. The technique was approved regarding linearity, exactness and accuracy over the fixation scope of 1–1000 ng/mL. The intra and between day exactness and precision, strength and extraction recuperations of all the analytes were in the worthy range. This strategy can be effectively applied to the pharmacokinetic investigation of AMD, VAL and HCT when given as a polypill.

Control of hypertension is significant for the avoidance of cardiovascular hazard factors. Calcium channel blockers have been broadly utilized in the treatment of hypertension and are frequently prescibed in the treatment of hypertension or potentially angina pectoris . Blend treatment of calcium channel blockers with an angiotensin II receptor blocker and a diuretic would be relied upon to give improved enemy of hypertensive movement Exforge hydrochlorothiazide (HCT)™ is a triple medication polypill affirmed by US-FDA [3] accessible in advertise that contains amlodipine (AMD), valsartan (VAL) and hydrochlorothiazide (HCT) in a solitary pill . Polypills are the fixed-portion mixes (FDC) of at least three dynamic fixings in a solitary pill with the aim of lessening the quantity of tablets or containers that should be produced to accomplish a huge results in forestalling cardiovascular sickness with insignificant antagonistic impacts. AMD, synthetically known as 2-[(2-amino ethoxy)- methyl]-4-(2-cholophenyl)- 1,4-dihydro-6-methyl-3,5-pyridine dicarboxylic corrosive 3-ethyl-5-methyl ester, benzosulfonate, is a dihydropyridine subordinate with calcium enemy movement utilized in the administration of hypertension, constant stable angina pectoris and prinzmetal variation angina .

Biography:

Syed N Alvi obtained his PhD in Chemistry from Osmania University, Hyderabad, India in 2001. He is currently Scientist at King Faisal Specialist Hospital & Research Centre, Riyadh, Saudi Arabia. He his research interest includes method development and validation and application for pharmacokinetic and bioequivalence studies.

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