A QUALITATIVE AND QUANTITATIVE ASSAY OF CEFTRIAXONE SODIUM INJECTION POWDER BY HPLC METHOD

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ABSTRACT

Ceftriaxone sodium is a third-generation cephalosporin antibiotic. Like other third-generation cephalosporins, it has broad spectrum activity against Gram positive and Gram-negative bacteria. In most cases, it is considered to be equivalent to cefotaximein in terms of safety and efficacy. In the present study an HPLC method was used for the assay of ceftriaxone sodium injection. The chromatographic system was equipped with Waters Spherisorb® C18 (4.6mm x 150mm, i.d, 5 mm,) column and detector set at 270nm, in conjunction with a mobile phase of potassium phosphate buffers (pH 7, adjusted using orthorphosphoric acid), sodium citrate (pH 5, adjusted with citric acid) and acetonitrile at a flow rate of 2.0ml/min and the injection volume set at 20 µl with 5 minutes of runtime. The described method was linear over a concentration range of 10.0-100.0 µg/ml for the assay of ceftriaxone sodium with a with good linearity response of 0.9992. The results of the study showed that the proposed HPLC method was simple, rapid and precise, which is useful for the routine determination of ceftriaxone sodium in injections. This study was carried out at the Mount Kenya University Research Laboratory between July-October 2013. The aim of the study was to analyze whether the ceftriaxone sodium injection powder found in the market meet the BP specifications. All the test samples met the BP specifications and are therefore useful as antibiotics. All the products analyzed met the BP specification for the requirement of uniformity of weight and the quantity of ceftriaxone in ceftriaxone sodium injection powder was within acceptable limits of 90-110%. The identity of ceftriaxone was confirmed since the peak retention times in relation to ceftriaxone standard were correlating. The assay results obtained show the need of carrying out regular post marketing analysis of drugs in the market so as to ensure that citizens get drugs that are of standard.