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Comparative Dissolution and Disintegration Study of Different Brands of Linezolid 600 mg Tablets Available in Karachi, Pakistan

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ABSTRACT:

The dissolution and disintegration tests (USP) are extensively useful for the determination of the safe and effective drugs as well as used for the stability and quality of the drug product. The purpose of the study was to observe the disintegration and dissolution profile (UV spectrophotometer), and estimation of the quality through weight variation and hardness test of different brands of Linezolid 600 mg tablets from Karachi, Pakistan. The weight variation test for all the brands was found to be under normal limits and the hardness of all the brands was also within normal limits. The tablet disintegration time was as per the specifications and all the tablets were disintegrated within 30 minutes except for brand C3, which disintegrates within 3.98 minutes and provided better disintegration time. Although, all the brands showed better dissolution rate, but the percent drug release of C1 was found to be the best, i.e. 100% drug was dissolved in 30 minutes in contrast to the different brands. Dissolution test is comparatively an efficient and cost effective in vitro approach that can be helpful in the assessment of the release attributes of formulation. It was found that brand C1 and C2 exhibited better dissolution profile as compared to other brands. Although, C3 and C4 were also found to be under the limits i.e. 80 % of the label amount of the drug.

Introduction：

The dissolution and disintegration tests (USP) are extensively useful for the determination of the safe and effective drugs as well as used for the stability and quality of the drug product. The purpose of the study was to observe the disintegration and dissolution profile (UV spectrophotometer), and estimation of the quality through weight variation and hardness test of different brands of Linezolid 600 mg tablets from Karachi, Pakistan. The weight variation test for all the brands was found to be under normal limits and the hardness of all the brands was also within normal limits.

Methodology:

Commonly indication which was observed almost with three per cent of patient courses is Thrombocytopenia especially if Linezolid is used for more than 14 days. The other harmful effect like Anaemia, neutropenia can take place in that patient who suffer with bone marrow suppression. Research of optic and peripheral neuropathy and lactic acidosis revealed adverse effects by the increase usage of linezolid like mitochondrial protein synthesis suppression. It is observed that combination of linezolid taken with serotogenic drugs (e.g. selective serotonin reuptake inhibitor) resulting serotonin syndrome developed.Dissolution test is comparatively an efficient and cost effective in vitro approach that can be helpful in the assessment of the release attributes of formulation as well as very effective in vitro assessment that can be used to asses and control variables relationship with formulation excipients, design and manufacturing [8]. So it is important to perform the dissolution test in order to forecast better in vivo evaluation of the drug product, which would be obtained if the gastrointestinal tract environment rejuvenates in vitro in better way

Conclusion :

The results indicate that all the brands of Linezolid tablets 600 mg showed good overall quality and also the high dissolution rate shows that the drug is effectively bioavailable. It is concluded that in attempts of performing different tests, the overall result is satisfactory indicating that the proposed study is precise and accurate and can be used for the determination of Linezolid in tablet dosage forms.

Keywords:

oxazolidinone derivatives and very helpful to treat Vancomycinresistant Enterococcus faecium infections; Nosocomial pneumonia