

Extended Release Orally Disintegrating Dosage Forms are Potential Techniques to Deliver and Maintain the Therapeutic Ranges of Plasma Drug Concentrations

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Editorial

Currently, in modern technology, new and innovative techniques are emerging up in the field of Drug Delivery System. Extended release orally disintegrating technology helps to maintain a therapeutic range of plasma drug concentrations for a longer time [1,9]. Therefore, we aimed to present such new and modern drug delivery system with dual character of orodispersible as well as extended release profile in order to enhance patient compliance. However, as the demand for Mouth Disintegrating Tablets (MDT's) continues to grow, therefore scientists are exploring ways to adapt MDT formulations for drugs that require extended release profile for optimal therapeutic benefits [2,3].

In addition of that, there are certain other techniques to manufacture the MDT's, the Center of Drug Evaluation and Research (CDER) Nomenclature Standards Committee has defined an Orally Disintegrating Tablet (ODT) as "Solid dosage form containing medicinal substances which disintegrates rapidly, usually within a matter of seconds, when placed upon the tongue" in 1998 [5]. Some of the new advanced technologies which are commonly being used in last few decades are Freeze drying/ Lyophilization, Molding, Direct Compression, Cotton Candy Process, Spray Drying, Sublimation and Mass Extrusion [4].

Moreover, the controlled or extended release orally disintegrating technologies offer potential drug delivery systems to provide optimum regimens of therapeutic value [6,7]. Such dosage forms enhance the efficacy, reduce toxicity and assure patient's drug compliance. Whereas, the extended release orally disintegrating technology reduces frequency, shorten the half-lives and help to avoid the undesired troughs and peaks of plasma drug concentrations to obtain the time variant efficacy associated with rapid drug release. Moreover, once a day extended release formulations offer an additional advantage for the special population where compliance is matter [10].

Orally disintegrating preparations are quickly dissolved in oral cavity and more convenient to administer to the patients of special populations. In addition of that, such dosage forms also provide additional advantages for patients experiencing dysphagia, brain or spinal cord injury, neurological disorders, multiple sclerosis, stroke, Parkinson's disease or muscular dystrophy. Thus, extended release orally disintegrating technologies provide benefit to the patient of gastro oesophageal reflux disease, esophagitis as well as oesophageal cancer. Whereas, the rapidly disintegrating dosage forms are dissolved in the mouth to add clinical effect of therapeutical value. Therefore, the pharmaceutical institutions are working to mask the taste and enhance

the palatability to develop orally disintegrating extended release dosage forms. Thus, a variety of excipients with different polymer systems and solvents are trailed to encapsulate the active drugs, resulting fine particles with polymer coated dosage forms. These particles are then incorporated into extended release orally disintegrating technology matrix.[9] The resulting dosage forms are then provide a variety of custom release profiles ranging from immediate, delayed, extended release to once daily regimen.

There are certain pharmaceutical preparations i.e. OraSolv®, DuraSolv®, Lyoc™ successful designed with extended release profiles. These technologies qualify the standards defined by the Centre for Drug Evaluation and Research for a solid dosage form containing medicinal substances, which disintegrates rapidly, usually within a matter of seconds, when placed upon the tongue [13].

In addition of that, the plasma drug concentrations remain within therapeutic window for a longer time as compared with conventional rapid release formulations [12]. These dosage forms are convenient in administration and disintegration in the mouth and can be taken whenever and wherever patients want because of quick and convenient unit dose blister packaging [11].

Thus, the combination of extended release technology with oral dispersible technology can results in dosage forms that offer additional therapeutical value for patients including better compliance, decrease in dosing frequency, maintenance of therapeutic drug concentration and administration of drug to the patients of special population. The determinants of MDT, ODT and MDERT's are adjustable within acceptable range to enhance the efficiency. Additionally, the extended release profile may also be designed to formulate the dosage forms to render the dose, regimen, protocol and frequency of patient in clinical practice.

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