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Second Year Block VII

Modified release dosage forms

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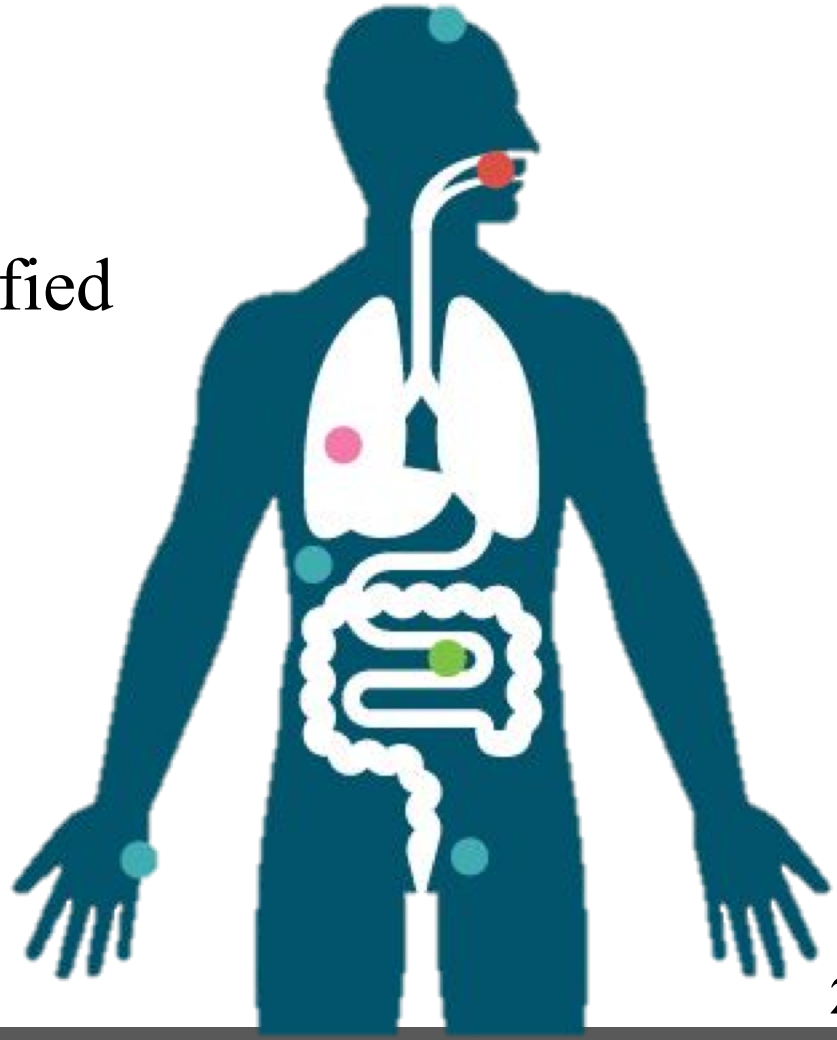
Objectives

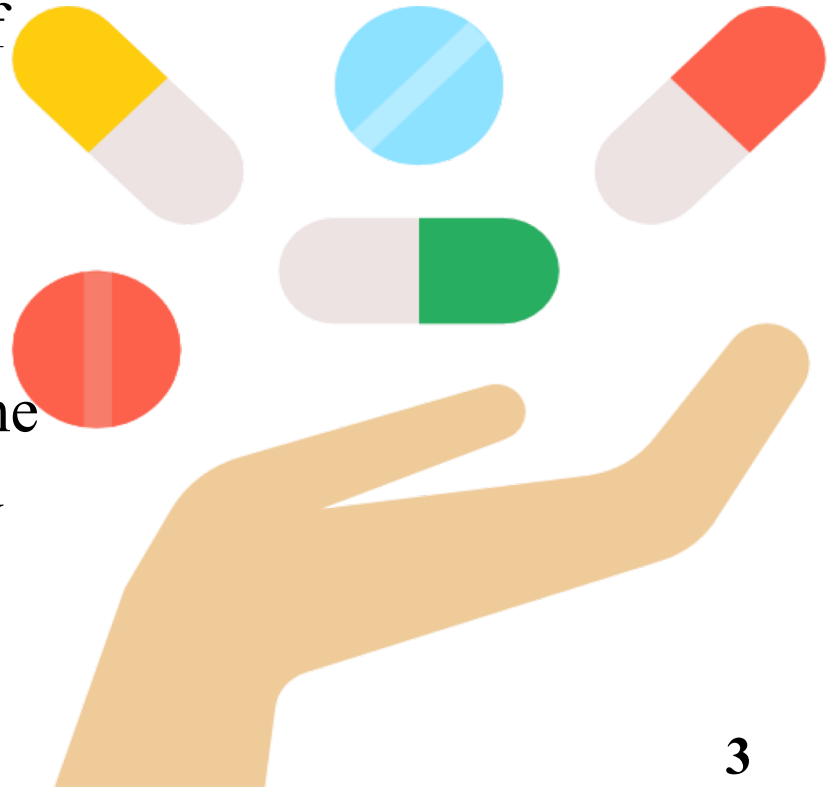
- Review modified release dosage forms
- List advantages & disadvantages of modified release forms
- Define extended release dosage forms
- Define delayed release dosage forms



Introduction of modified release dosage forms

The term “modified release” refers to both delayed and extended release systems for oral administration as well as other delivery systems designed specifically to modify the release of poorly water-soluble drugs.

Modified release dosage forms are drug delivery systems (DDS) which, by virtue of formulation and product design, provide drug release in a modified form distinct from that of the conventional dosage forms. Drug release can either be delayed or extended in nature.



Advantages

Vs

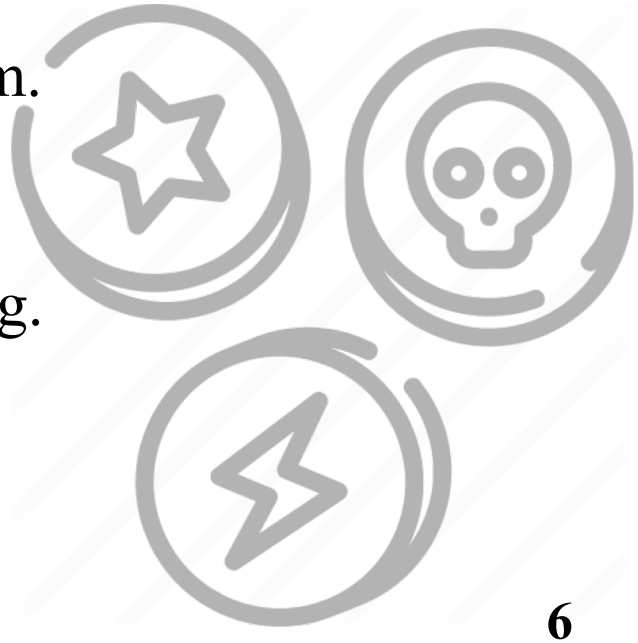
Disadvantages

Advantages

1. Improved patient compliance and convenience, due to reduction in dosing frequency.
2. Minimize the drug accumulation with chronic dosing.
3. Minimize or eliminate local and systemic side effects.
4. Increased safety margin of high potency drugs due to better control of plasma drug level.

Disadvantages

1. Administration of modified release medication does not permit prompt termination of therapy.
2. The physician has less flexibility in adjusting dosage regimens.
3. Drugs absorbed at specific sites cannot be given in this dosage form.
4. Poor in-vitro-in-vivo correlation.
5. More costly process and equipment's are involved in manufacturing.



Define extended release dosage forms

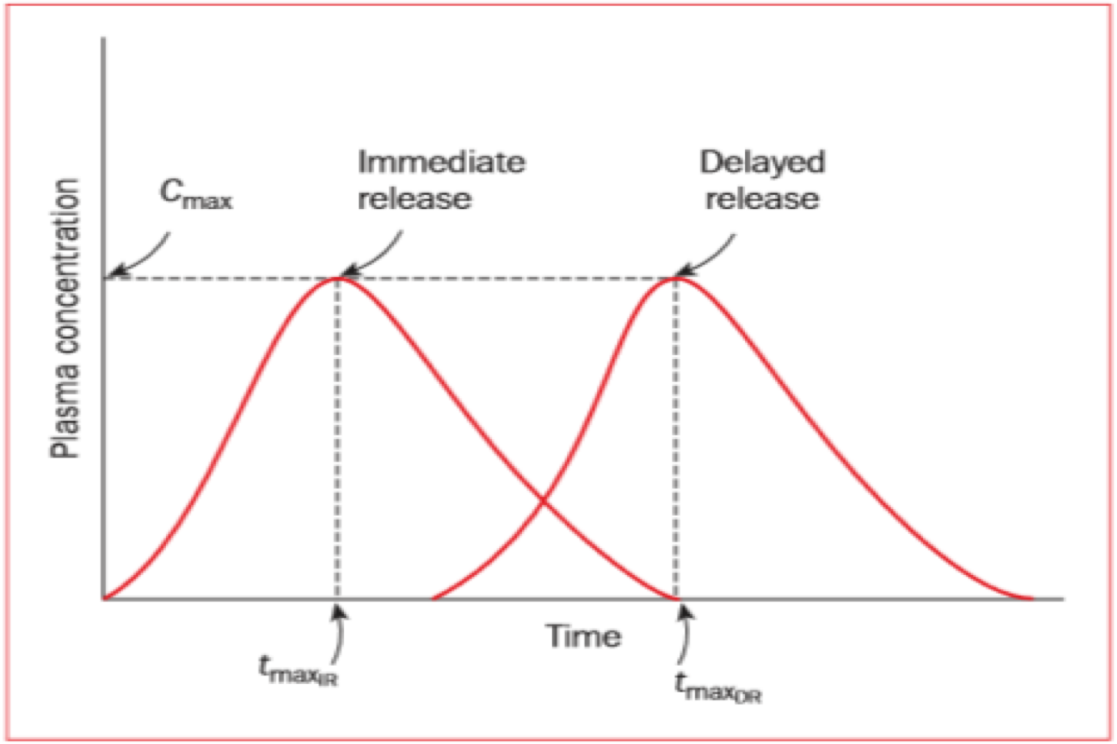
Pharmaceutical dosage forms that release the drug slower than the normal at predetermined rate and necessarily reduce the dosage frequency.

- E.g. Controlled release, sustained release, prolonged release.

Examples of extended release

Define delayed release dosage forms

Based on pH dependent drug release mechanism of similar to conventional enteric-coated formulations, but they differ in target site for delivery and therefore type of enteric polymers.



Enteric-coated tablets

The coating design and thickness applied to this tablet type depend on the time required for transporting through intestine. Is based on pH, as some enteric coatings are designed to dissolve at pH 4.8 and greater.

Summary

- Modified release dosage forms are those that alter the timing and/or the rate of release of drug substance.
- Minimize the drug accumulation with chronic dosing.
- Poor in-vitro-in-vivo correlation.
- The enteric coated tablet based on pH, as some enteric coatings are designed to dissolve at pH 4.8.

References

- Chandana, N., Gopinath, H., Bhowmik, D., Williamkeri, I., et al. (2013) Modified release dosage forms. *Journal of Chemical and Pharmaceutical Sciences*. [Online] 6 (1), 13–21. Available from: doi:10.1093/ajhp/43.10.2565.
- Joseph, A. (1990) Pharmaceutlcal Dosage Forms and Drug Delivery Systems. *Journal of Pharmaceutical Sciences*. [Online] 79 (11), 1044. Available from: doi:10.1002/jps.2600791127.

Any questions ?