



## OSMOTIC PUMP DELIVERY SYSTEM FOR CONCERTA

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### Categoria do Trabalho

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### Resumo

#### Introduction

The attention deficit hyperactivity disorder, also known ADHD, is usually diagnosed in childhood and will accompany the individual for the rest of his or her life. Its symptoms are inattention, restlessness and impulsiveness. Methylphenidate hydrochloride is the treatment of ADHD and can be found under the trade names: Ritalin, Ritalin LA and Concerta.

Methylphenidate is a central nervous system stimulant, due to its inhibition of dopamine reuptake in the striatum, so that the release of dopamine is not triggered.

#### Objective

This paper aims to describe the pharmaceutical characteristics and the release mode of the drug concerta.

#### Materials and methods

This research were conducted using electronic platforms of scientific journals, which are PubMed and Scielo, and also used the book Pharmacotechnology – pharmaceutical forms & drug delivery systems – 6th edition.

#### Result and discussion

When delivered as a concerta, methylphenidate will be released by the OROS (Osmotic Controlled-Release Oral Delivery) mechanism, with a small dose (22%) being released immediately and the remainder being released gradually. The OROS delivery consists of two osmotic layers surrounded by a semipermeable membrane containing a 0,4 mm diameter orifice. In the stomach the first coating will dissolve within 1 hour releasing 22% of the drug. The orifice in the membrane will allow water, present in the stomach, to enter, causing the osmotic polymeric excipient to expand and release the active ingredient in a controlled manner over a period of 6-7 hours.

#### Conclusion

The concerta will act gradually in the body, giving the patient the freedom to take only one pill a day and have the same effectiveness of 3 daily doses of Ritalin. The mechanism of action of the concerta will be to inhibit the



neurotransmitter receptors, causing an increase of these neurotransmitters in the extraneuronal part, and thus prolonging its action.