# Abstract

The aim of this study was to summarize the pharmacokinetic and pharmacodynamic knowledge about methadone, and to compare it with morphine on both molecular and clinical level. Methadone and morphine are μ opioid agonists, and therefore their effect on the organism is similar. However, the existence of fundamental differences between them, is decisive for their use in clinical practice. It was discovered that on a molecular level, methadone has a higher efficiency to internalise μ receptors than morphine, moreover it's potential to form addiction and tolerance is lower. From a pharmacokinetic point of view, methadone in contrary to morphine has a much longer elimination half-life, which brings a lots of benefits and lots of disadvantages. One of the benefits is longer effect, which together with the lower potential for tolerance and addiction development, predetermined methadone to be used for maintenance therapy for patients addicted to opiates. Maintenance therapy is based on the replacement of an illegal drug (mainly heroine), for an opiate of similar nature, which on the other hand has more favourable effects on the patient (methadone). The purpose of it is to ease the development of withdrawal symptoms during therapy's first stages, and with gradual lowering of methadone dosage, to lead the patient to complete abstinence.