

Determination of Tramadol in Liver Tissues Using HPLC-DAD

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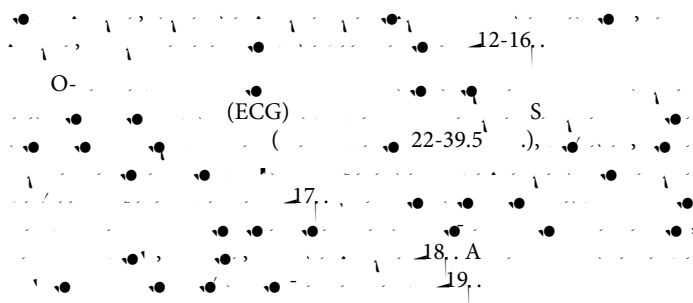
Abstract

Tramadol prescribed narcotic analgesic; tramadol overdose was reported old male 35 years. Free tramadol and its metabolite isolated by two methods of extraction, Stas Otto and ammonium sulfate extraction from liver tissues and comparison between efficiency of the two methods. Liver extractions have tramadol and main metabolite O-desmethyltramadol was quantified by HPLC-DAD. Tramadol was determined in liver concentration 27.98 µg/g and 27.93 O-desmethyltramadol in Stas Otto. Liver concentration of tramadol 23.92 µg/g and O-desmethyltramadol 9.62 µg/g in ammonium sulfate extraction. Objective: To determination free tramadol and its metabolite in liver tissues by using two methods of extraction and comparison concentrations by HPLC-DAD of liver old male 35 years over dose in Upper Egypt.

Keywords: Tramadol; Metabolite; Liver; HPLC-DAD

Introduction

Tramadol is a synthetic narcotic analgesic with a chemical structure similar to morphine. It is used for the treatment of moderate to severe pain. The main metabolite of tramadol is O-desmethyltramadol, which is also active. Tramadol is metabolized in the liver, and its metabolites are excreted in the urine. The determination of tramadol and its metabolites in liver tissues is important for forensic medicine, especially in cases of overdose. This study aims to determine the concentration of tramadol and its metabolite in liver tissues using two different extraction methods (Stas Otto and ammonium sulfate) and compare the results using HPLC-DAD. The results show that the Stas Otto method is more efficient than the ammonium sulfate method for the extraction of tramadol and its metabolite from liver tissues.



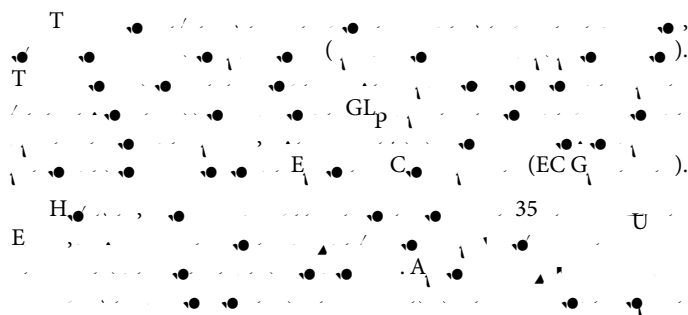
Materials and Methods: A mixture of tramadol and its metabolite O-desmethyltramadol was prepared in distilled water as standard solution.

Results and Discussion

The results of the determination of tramadol and its metabolite in liver tissues are shown in Table 1. The concentration of tramadol and its metabolite in liver tissues was determined using HPLC-DAD. The results show that the Stas Otto method is more efficient than the ammonium sulfate method for the extraction of tramadol and its metabolite from liver tissues.

Discussion

The results of the determination of tramadol and its metabolite in liver tissues are shown in Table 1. The concentration of tramadol and its metabolite in liver tissues was determined using HPLC-DAD. The results show that the Stas Otto method is more efficient than the ammonium sulfate method for the extraction of tramadol and its metabolite from liver tissues. This is due to the higher efficiency of the Stas Otto method in extracting these compounds from liver tissues. The results also show that the concentration of tramadol and its metabolite in liver tissues is higher in the Stas Otto method compared to the ammonium sulfate method.



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