

论文

CYP2D6酶活性的毛细管气相色谱法测定及在代谢分型中的应用

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摘要:

目的: 建立测定细胞色素CYP2D6酶活性的毛细管气相色谱方法。方法: 受试者口服右美沙芬(DM)后收集0~8 h尿样, 经提取分离, 以HP-1毛细管柱分离, FID为检测器。结果: 右美沙芬与代谢物3-羟基-N-甲基-吗喃(DT)分离良好, DM在0.20~1.60 $\mu\text{g}\cdot\text{mL}^{-1}$, DT在0.40~20.00 $\mu\text{g}\cdot\text{mL}^{-1}$ 范围内线性关系良好, 回收率分别为99.5%和99.8%, 日内相对标准偏差分别小于5.47%和6.19%, DM和DT的最低检测限分别为8 ng和4 ng。用此法对11名健康志愿者进行了CYP2D6活性测定。结论: 此法简便、准确, 可用于CYP2D6酶活性的测定。

关键词: 右美沙芬; CYP2D6酶活性; 毛细管气相色谱法

DETERMINATION OF CYP2D6 ACTIVITY BY CAPILLARY GAS CHROMATOGRAPHY AND ITS APPLICATION IN METABOLIC PHENOTYPING

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Abstract:

AIM: To develop a capillary GC method for the indirect determination of CYP2D6 activity. METHODS: After an oral dose of 30 mg dextromethorphan, urine samples were collected and extracted, then analysed on a 0.22 mm \times 25 m HP-1 column coupled with FID detector. The temperatures of the column, injector and detector were 190 $^{\circ}\text{C}$, 260 $^{\circ}\text{C}$ and 260 $^{\circ}\text{C}$, respectively. RESULTS: Dextromethorphan (DM) and its metabolite dextrorphan (DT) were well separated. There was good linear relationship between chromatographic area and concentration in the concentration range of 0.20~1.60 $\mu\text{g}\cdot\text{mL}^{-1}$ for DM and 0.40~20.00 $\mu\text{g}\cdot\text{mL}^{-1}$ for DT. The recoveries of DM and DT were 99.5% and 99.8%, respectively. Within day's relative standard deviations were no more than 5.47% for DM and 6.19% for DT. The lowest detection limits were 8 ng for DM and 4 ng for DT. The CYP2D6 activities in 11 volunteers were determined with this method. CONCLUSION: The established GC method was simpler than previous GC method, it can be used for the determination of CYP2D6 activity.

Keywords: CYP2D6 activity capillary gas chromatography dextromethorphan

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