فنونی فعالیت منابعی آنزیم سینتئزوم پی 1A2 (CYP1A2) با تجویز کافئین خوراکی در نمونه ای از داوطلبین سالم مازندرانی

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نقد مقدمه

نتیجه‌گیری: فعالیت آنزیم سینتئزوم پی 1A2 (CYP1A2) در افراد حاوی داروهای تیکویل را کاهش می‌دهد.

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کلمات کلیدی: فنونی CYP1A2, کافئین, آنزیم سینتئزوم

خلاصه

مقدمه

فنونی فعالیت منابعی آنزیم سینتئزوم پی 1A2 (CYP1A2) با تجویز کافئین خوراکی در نمونه ای از داوطلبین سالم مازندرانی

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چکاری نشان دهنده سطح دنیای خونم از افراد اثر انگیز CYP1A2 است. در آزمون‌های درمانی، نتایج از تغییرات مطلق و نسبی در سطح دنیای خونم از افراد اثر انگیز CYP1A2 ثابت کننده قرار دارد.


determination of CYP1A2 phenotype after oral... S. Sh., Rostamkolaee, et al.
Population Pharmacokinetics (POPK) and Bayesian Population Pharmacokinetics (BPPPK) are statistical methods used to estimate individual pharmacokinetic parameters from population data. These methods are particularly useful in drug development when there is a need to understand the variability in drug response among different individuals. Bayesian methods incorporate prior knowledge and uncertainty in the estimation process, providing a more robust approach to parameter estimation.

The CYP1A2 enzyme plays a significant role in the metabolism of many drugs, and its genetic polymorphism can affect drug clearance and efficacy. The relationship between CYP1A2 SNPs and POPPK parameters is an area of interest in personalized medicine. By understanding this relationship, pharmacists and healthcare providers can better tailor medication dosages to individual patient needs, potentially improving treatment outcomes.

In the context of Bayesian analysis, incorporating prior knowledge about CYP1A2 SNPs can help refine predictions and enhance the accuracy of individualized dosing schedules. This approach not only improves patient care but also reduces the risk of adverse drug reactions and enhances the effectiveness of therapeutic interventions.

Overall, the integration of POPPK and BPPPK with CYP1A2 genotyping offers a powerful tool for optimizing drug therapy and achieving better health outcomes for patients.
Determination of CYP1A2 Phenotype after Oral Administration of Caffeine in a Sample of Healthy Volunteer from Mazandaran Province

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ABSTRACT

BACKGROUND AND OBJECTIVE: Assay of caffeine (CA) plasma concentration can help to find out the activity level of hepatic microsomal cytochrome oxidase 1A2 (CYP1A2). This study was conducted to evaluate the phenotype of activity of CYP2A1 in a sample of Iranian volunteers based on salivary concentration of CA as typical probe of CYP1A2.

METHODS: Saliva concentration of CA in 100 Iranian healthy subjects from Mazandaran province (82 men and 18 women) was measured at 0, 0.5, 2, and 5 h after drinking a cup of coffee containing 50 mg caffeine using HPLC method. C8 analytical column and a mobile phase composed of methanol (60%) and water (40%) were used for the chromatographic separation. The peak was detected using a UV detector set at 210 nm.

FINDINGS: The mean ± SD of age and body mass index were 24.5 ± 6.9 years (range: 18-55 years) and 23.45 ± 3.7 (range: 16.7-37.4), respectively. The CV was 3.2% and good linearity (R² = 0.997) was confirmed. The mean elimination half time of CA was 2.01 ± 0.124 h (1.98 h for females and 2.02 h for males) and elimination half-time of CA in above 30 years old (2.05 h) was higher than below 30 years old (2.00 h). The mean Cmax of CA was 0.16 ± 0.02 mcg/ml and Kel was calculated 0.41 ± 0.016.

CONCLUSION: A normal phenotype of CYP2A1 activity was observed in the Iranian participants in this study. The CYP2A1 activity is higher in elderly subjects than in young.

KEY WORDS: CYP2A1, Caffeine, Elimination half time, HPLC, Saliva.

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References


