

gy). The clinical aspects are tested by analyzing diagnostic proficiency testing (external quality assessment - EQA) and other samples from patients with metabolic and malignant disorders.

**RESULTS:** The analytes, orotic acid and orotidine-5'-monophosphate are identified and quantified with high performance parameters of repeatability, reproducibility, robustness, precision and accuracy. The quantification method is based on internal standard approach for signal and matrix effect suppression. Whatever analytes is identified and quantified by

two MRM transition with  $S/N > 50$  in LOD range. The analytical method clearly distinguish between urine and plasma specimens from the normal and pathological patients at 97.5% of level of confidence.

**CONCLUSIONS:** The HPLC-MS/MS method to be suitable for differential diagnosis of hereditary metabolic disease and metabolic monitoring of toxicity induced by anticancer drug. The analytical protocol is rapid and ideal to be used in routine analysis of clinical chemistry laboratory.

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## EFFECT OF SEASONS ON FOUR ANTI-EPILEPTIC DRUGS PLASMA LEVELS

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**BACKGROUND:** Therapeutic drug monitoring of anti-epileptic drugs is widely use for the management of epilepsy and to avoid treatment failure or explain adverse events onset. In this study, we explored the role of months and seasons of withdrawal for plasma quantification of oxcarbazepine, lamotrigine, phenytoin and levetiracetam pharmacokinetics and outcome cutoffs prediction.

**METHODS:** One hundred and seventy-five adult patients were enrolled. Drugs plasma concentrations were measured by HPLC-UV methods.

**RESULTS:** We reported that oxcarbamazepine levels were higher in autumn and winter than those reported in spring and summer. In logistic regression model, warm seasons have been retained as therapeutic range negative predictive factors. If we separately evaluate males and females, the influence of seasons on oxcarbamazepine concentration remained only in male patients, also considering the logistic regression analysis. No factors significantly influenced lamotrigine, phenytoin and levetiracetam levels or were retained in regression model as treatment outcomes predictive factors.

**CONCLUSIONS:** These results, for the first time, suggest the effect of seasons on oxcarbamazepine. Apply a seasonal and gender specific approach should be the key to optimize treatment in each patient, in each period of people life.