

## Salivary caffeine clearance in diagnosis of chronic liver disease

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**Objectives:** To use salivary caffeine clearance (S.C.C) for diagnosis of chronic liver disease (C.L.D)

To compare S.C.C. with clinical grading of severity of C.L.D.

To compare caffeine clearance in saliva and serum of normal subjects.

**Method:** Subjects (n=30) with C.L.D. and healthy controls (n=15) were administered 200mg of caffeine (Indian Pharmacopoeia grade). Subjects classified into three severity groups (class-A-mild-n=9, B-moderate-n=11, and C-severe-n=10) based on "Child-Pugh classification" of severity of liver disease. 17 hour of dietary caffeine restriction, followed by 0 hour salivary sample (1-3ml) from subjects and controls, and after the dose of caffeine, 4 and 16 hour saliva sample of controls, and blood (1-2ml) and saliva sample of subjects, was taken. These samples were labeled, stored(-20°C) and analyzed on semi automated analyzer using Enzyme Multiplied Immunoassay Technique (EMIT-homogenous enzyme immunoassay technique-drug concentration in the sample can be measured in terms of absorbance change, that can be measured spectrophotometrically) and caffeine levels of samples were obtained. Caffeine clearance values were calculated (product of elimination constant and volume of distribution) and analyzed (Students t- tests-to find significance of difference between patient and control for mean of caffeine concentration at 0,4,16 hr and caffeine clearance, Pearson's correlation analysis-between serum and salivary caffeine concentrations at 0, 4 and 16 hours and clearances.)

**Results:** Controls showed higher mean of S.C.C value of  $1.6 \pm 0.2$  ml/min/kg. S.C.C. values of subjects were less, with mean of  $0.5 \pm 0.2$  ml/min/kg. Significant correlation ( $P < 0.001$ ) was found between degree of hepatic dysfunction (as assessed by Child-Pugh classification) and S.C.C values.

**Conclusion:** Present study revealed that S.C.C. aids in diagnosis of C.L.D. and assessment of severity of C.L.D. and that saliva can be used as alternative to serum for assessing hepatic caffeine clearance.

**Relevance:** S.C.C. is simple and easy method which can be used as indicator to assess prognosis and severity of C.L.D.

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