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Title: Utility of salivary cortisol in corticotropin releasing hormone (CRH) test in asthmatics

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Body: Introduction: Although glucocorticoid is the most effective anti-inflammatory agent for bronchial asthma, its systemic administration leads to suppression of adrenal function. The CRH test is useful in the diagnosis of adrenal insufficiency but obtaining multiple blood samples is invasive. And it is known salivary cortisol have a correlation with blood cortisol, but it has not been fully studied yet in asthmatics. Aim: The aim of this study was to validate the consistency of the cortisol values of matched blood and saliva samples in the CRH test in asthmatics. Methods: Subjects were 12 cases of nine patients who needed systemic steroid administration for the treatment of asthmatic attack. The ages of subjects were 1 to 36 years (median 12.5 years). Their cortisol was measured before the administration of human CRH (1.5µg/kg) and until 120 minutes every 30 minutes. We compared the value of cortisol in saliva with that in blood. We defined peak cortisol <20µg/dl as "adrenal suppression", and all cortisol values <6µg/dl as "adrenal insufficiency" in CRH test about blood sample. We also defined those as <0.38µg/dl and <0.050µg/dl respectively about saliva sample. Results: Significant correlations were detected between blood and salivary cortisol values ($r=0.705$, $P<0.0001$). The diagnosis of adrenal function using saliva accorded with that using blood in all cases. Conclusions: Measurements using salivary cortisol in the CRH test could be available in asthmatics.