Adrenal function in hospitalised patients with pulmonary tuberculosis treated with rifampicin

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A research report submitted to the Faculty of Health Sciences, University of Witwatersrand, in partial fulfillment of the requirements for the degree of Master of Medicine in the branch of Internal Medicine

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Declaration

I, Willem Daniel Francois Venter, declare that this research report is my own work. It is being submitted for the degree of Master of Medicine in the clinical discipline of Internal Medicine in the University of the Witwatersrand, Johannesburg. It has not been submitted before for any degree or examination at this or any other University.

Signature: _____

_____day of _____, 2008.

Dedication

Dedicated to all my medical teachers who have taken time and patience to educate me about our discipline.

Publication and presentations arising from this study

Venter WDF, Panz VR, Feldman C, Joffe BI, Adrenocortical function in hospitalised patients with pulmonary tuberculosis receiving a rifampicin-based regimen – a pilot study. South African Medical Journal 2006; 96; (1); 62-67

Venter WDF, Panz VR, Feldman C, Joffe BI, Adrenocortical function in hospitalised patients with pulmonary tuberculosis receiving a rifampicin-based regimen. Poster presentation, Society of Endocrinology, Metabolism and Diabetes of South Africa, Johannesburg, 9-12 April, 2005

Abstract from the conference published in Journal of Endocrinology, Metabolism and Diabetes of South Africa 2005; 10 (1), 37

Abstract

Introduction: Tuberculosis carries a high mortality in the days immediately after treatment. It is also the commonest cause of adrenal insufficiency in the developing world. Rifampicin is a potent hepatic enzyme inducer, and may contribute to adrenal insufficiency by accelerating cortisol breakdown. The aim of the study was to determine whether rifampicin induced accelerated catabolism of corticosteroids.

Methods: A prospective, randomised study comparing adrenal function in 20 patients with pulmonary tuberculosis in the first five days treated with two different antituberculosis regimens, one containing rifampicin, and the other ciprofloxacin.

Results: Demographic, clinical and laboratory results were similar in both groups. Both groups showed a statistically significant and similar decrease in morning cortisol, with similar responses to ACTH stimulation at both 30 and 60 minutes before and after four days of treatment. In the entire cohort, 40% demonstrated an incremental cortisol rise of <250nmol/l after ACTH stimulation on day 1. Mean basal cortisol concentrations were substantially elevated and DHEA-S levels were consistently subnormal, resulting in a high cortisol:DHEA-S ratio. No patient demonstrated overt adrenal insufficiency. There were no significant differences between the two groups before or during therapy for any electrolytes, hormones or calculated serum osmolality.

Conclusions: Rifampicin did not additionally impair adrenocortical function during the initial period of therapy.

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