

RED CELL GLUCOSE 6-PHOSPHATE DEHYDROGENASE ACTIVITY IN SUBJECTS WITH CHRONIC KIDNEY DISEASE OF UNKNOWN AETIOLOGY IN NORTH CENTRAL AND UVA PROVINCES

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Introduction

Chronic kidney disease (CKD) is a growing worldwide health problem. In recent years investigators in Sri Lanka have noticed a very worrying increase in the number of patients with CKD in North Central (NCP) and Uva (UP) provinces of the country. Studies performed so far suggest a common, although yet unknown aetiology, leading to marked tubulointestinal fibrosis of the kidneys that finally causes kidney failure.

Glucose-6-phosphate dehydrogenase (G6PD) deficiency is the commonest enzymopathy in the world. G6PD catalyzes the entry step of G6P into the Pentose Phosphate Shunt. In the red cells, this alternate anaerobic pathway for glucose metabolism is the only source for NADPH, which is required to maintain an effective redox potential protecting cell membrane against oxidative stress and injury. The literature shows that G6PD deficiency is so far related only to acute renal failure

(Sarkar *et al.*, 1993; Luzzatto *et al.*, 1969; Copper *et al.*, 1972) and no association with chronic renal failure was found. The objectives of the study were to (1) assess the prevalence of G6PD deficiency among the CKD patients with unknown aetiology (2) ascertain whether G6PD could be used as a marker for CKD of unknown aetiology.

Methods and Materials

We selected 70 cases of biopsy proven CKD of unknown aetiology from different locations; 50 from Medawachchiya (NCP), 20 from Giradurukotte (UP) known to be having higher prevalence of CKD of unknown aetiology. The Medawachchiya population has been there for several generations with heavy exposure to malaria while Girandurukotte is a resettlement area in 1980s, with exposure to malaria. The renal failure patients included in the study sample and control group had creatinine levels between 100-300 $\mu\text{mol/l}$. We selected four control

