SKIN MANIFESTATIONS OF INTERNAL DISEASE

COMPARISON OF TRANSEPIDERMAL WATER LOSS AND SKIN HYDRATION AMONG DIABETIC AND NON-DIABETIC PATIENTS

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Introduction: Pruritus among patients with diabetes mellitus (DM) is common and if left untreated may lead to complex dermatological conditions. Pruritus can be caused by an increased in transepidermal water loss (TEWL) and a reduced skin hydration. These factors may be more pronounced in patients with DM.

Objectives: The primary objective is to compare the TEWL and skin hydration in diabetic compared to non-diabetic patients. We would also want to investigate the associations between TEWL and skin hydration with HbA1c, fasting blood sugar (FBS), diabetic treatment, peripheral neuropathy and age in the diabetic population.

Materials and methods: This is a prospective, case control study carried out at a tertiary medical centre in Kuala Lumpur, Malaysia. The TEWL and skin hydration measurements were taken at six different sites which are forearms, flanks and shins in both groups.

Results: A total of 146 patients were included (73 case, 73 control) with 24 males and 49 females in each group. There is no significant difference in TEWL and skin hydration between diabetics and non-diabetics. There is a significant reduction in skin hydration in DM patients with uncontrolled FBS>7mmol/L; p=0.005 and peripheral neuropathy; p=0.005. Lower TEWL over the anterior shin is observed in patients with HbA1c>6.5%; p=0.018. Increased TEWL at the flank was observed in patients on insulin injections >1ü/kg/d; p=0.003. There was a signifcant reduction in TEWL in the anterior shin (p=0.017) and overall site measured (p=0.042) in those >45 years old in the diabetic group.

Conclusion: There was no difference in TEWL and skin hydration in diabetic and non-diabetic patients. In the diabetic group, a reduction in skin hydration was associated with uncontrolled FBS and peripheral neuropathy but not HbA1c or diabetes treatment. Increased TEWL was seen in patients on higher insulin requirement and in patients age >45

years.