7.1.2 POTENTIAL OCCURRENCE OF CALCIUM ARSENATE DEPOSITIONS IN CKDU AFFECTED KIDNEYS

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Introduction: Arsenic present in drinking water is the most recently proposed (hypothesis) potential causative agent of chronic kidney disease of unknown aetiology (CKDu) in North Central Province and adjacent areas of Sri Lanka. Aetiology however is hitherto not been explained. Formation of calcium arsenate, the most probable molecule that can be expected to affect kidney function in the presence of Ca^{2+} and As under aerobic conditions needs further investigations for confirmation on the mechanisms involved.**Objective:** To determine calcium and/or arsenic depositions in renal tissues of deceased patients as arsenic in hardwater has been identified as a major risk factor for the disease.

Methodology: Autopsy samples received from two pathological post mortem studies done at Padavi Sri pura were used for investigations. Renal tissues were processed to produce ten slides from each kidney. Von Kossa method and copper sulfate were used as stains to visualize calcium and arsenic respectively.

Results: Occurrence of interstitial fibrosis and tubular atrophy were the principal histopathological observations made with the renal tissues under study. Severe atrophy and loss of glomeruli with areas of glomerularsclerosis and glomerular collapse were also noted. Characteristic dark colour of silver depositions when stained with Von Kossa method, was observed specially in atroping glomeruli. Characteristic Paris green colour was produced in comparable regions when stained with copper sulfate, indicating presence of arsenates.

Conclusion: Tubular interstitial nephritis associated with severe glomerular atrophy and loss of tissue is the identifiable histopathological changes in these samples. It is commonly observed in toxic nephropathies. This combination is not usually seen in CKD of pure diabetic and hypertensive origin. Arsenates produce Paris green colour with copper sulfate. Possibility of occurrence of calcium arsenate deposits cannot be excluded as areas which stained for calcium were also stained for arsenate. Chronic arsenic toxicity is known to produce tubular interstitial nephritis hence detail study is needed to assess the effect of calcium arsenate deposits in CKDu etiology.

7.1.3 ARSENIC (AS) RELATED SKIN MANIFESTATIONS IN PATIENT WITH CHRONIC KIDNEY DISEASE OF UNKNOWN AETIOLOGY (CKDU) IN THE NORTH CENTRAL PROVINCE OF SRI LANKA

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Introduction: A recent presentation has claimed a high prevalence of arsenic (As) related skin manifestations among CKDu patients. In 12 CKDu endemic villages, almost 45% patients were thought to have As related skin manifestations. The same investigators and others, in a website by the Environmental Law Alliance Worldwide (ELAW) claim that almost 80% show the same manifestations. We studied the prevalence of As related skin manifestations in renal clinic patients with CKDu.

Materials and methods: A sample was selected from patients attending renal clinic, teaching hospital Anuradhapura. All patients with CKDu, attending on a single clinic day, were consented, and all consenting patients were referred to a consultant dermatologist, specifically for assessment of As related skin changes.

Results: 54 patients were identified and all patients consented. Data sheets after consultant dermatologist assessment were returned by 30. Only one had possible As related skin changes, and is planned for further investigations.

Discussion: It appears that no dermatologist was involved in the previous study. The online photographs do not appear to show characteristic dermatological manifestations. However, details are not clear in these photographs.

Conclusion: As related skin changes are rare, if present at all, in CKDu patients in the North Central Province