References

Pronounced Decrease of Tamm–Horsfall Proteinuria in Diabetics, A. M. Bernard, A. A. Ouled, R. R. Lauwerys, A. Lambert, and B. Vandevenne (Units of Industrial Toxicol. and of Diabetol. & Nutrition, School of Med., Univ. of Louvain, B-1200 Brussels, Belgium)

Tamm–Horsfall glycoprotein (THG), a specific renal protein localized on the membrane of the epithelial cells of the thick ascending limb of the loop of Henle, is probably involved in generation of the hypotonic fluid delivered to the distal tubule, presumably by restricting water movement across the ascending loop of Henle. We measured THG in untimed urine samples from 66 diabetics (29 of type I, seven of type II, and 30 of type III), ages 19–78 y, and in 30 healthy control subjects ages 20 to 65 y. The mean duration of diabetes was 13 (SD 7.9) y.

Urinary THG was disaggregated by 40-fold dilution of the urine in distilled water, then measured by latex immunoassay (I) with use of antiserum from U.S. Biochemical Corp., Cleveland, OH 44128. Figure 1 shows that urinary excretion of THG is markedly decreased in diabetics, 65% of whom excreted THG below the mean –2 SD for control values. For purposes of comparison, the prevalences of subjects with increased urinary excretion of albumin, retinal-binding protein (RBP), or β-N-acetylglucosaminidase (NAG) are 53.6, 26, and 15.9%, respectively (Figure 1). THG excretion shows no correlation with these indices of glomerular or proximal tubular damage or with age, duration of diabetes, glycermia, or glycosylated hemoglobin. Evidently, synthesis of THG may commonly be depressed in diabetics. This effect, which is not related to damage at other sites in the nephron, presumably may result either from decreased delivery of insulin to tubular cells or increased glucose concentration in tubular fluid.

Reference

Isometheptene Cross Reacts in the EMT Amphetamine Assay, B. S. Levine and Y. H. Caplan (Office of the Chief Medical Examiner, 111 Penn St., Baltimore, MD 21201)

A urine specimen submitted by a member of this laboratory tested positive for amphetamine in both the EMT screening and the EMT confirmatory assays. Gas-chromatographic analysis indicated that the urine specimen was negative for amphetamine, methamphetamine, phentermine, phenylpropanolamine, and ephedrine. However, an early peak appeared on the chromatogram.

The subject occasionally used Midrin® to treat migraine headaches. One component of this drug is isometheptene, a sympathomimetic amine. When isometheptene was tested for cross reactivity to the EMT amphetamine antibody, specimens containing isometheptene at concentrations >5 mg/L tested positive.

To investigate the significance of this finding, an in vivo study was undertaken to determine how long after ingestion of two capsules the concentrations of isometheptene in urine would be of sufficient magnitude to produce a positive result by EMT. Concentrations of isometheptene in urine were determined after a single-step alkaline extraction by gas chromatography (GC) (column packed with 10% Apiezon L with 2% KOH). EMT assays were performed in duplicate in accordance with the manufacturer’s instructions. We reanalyzed all positive specimens, using the EMT confirmatory procedure for amphetamine.

The subject refrained from taking Midrin until submitted urine specimens were negative for isometheptene by GC. Two capsules were then ingested and urine specimens collected over a 48-h period. The urine specimen collected 3 h after ingestion was positive by the preliminary and confirmatory EMT assays (isometheptene concentration by