The Use of Formaldehyde as a Preservative in the Microscopic Examination of Urine Sediment

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Key Words

Urinalysis
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Formaldehyde
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Abstract

A method for preserving the cellular content of urine for microscopic examination is presented.

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Introduction

Undue delay prior to examination of a urine specimen usually renders it unsuitable. With time, erythrocytes lyse, leukocytes and casts degenerate and bacteria proliferate. It is, therefore, recommended that urine samples should be analyzed within one-half hour of collection [1]. To preserve urine for analysis, samples can be refrigerated. A decrease in bacterial activity retards chemical changes, however, deterioration of leukocytes and casts is not always prevented. Use of preservatives such as toluene, thymol, chloroform and formaldehyde have been suggested. Unfortunately, preservatives have not been found to be totally satisfactory. A study was conducted in which urine sediments containing abnormal amounts of leukocytes, erythrocytes and casts were preserved with formaldehyde and subsequently stored at 4°C for 24 h.

Materials and Method

Urine samples were tested chemically (Labstix, Ames Co., Chicago, 111.) and specific gravity noted. Urine samples (10 ml) were transferred to: (a) tubes containing 0.5 ml, 40% w/v formaldehyde; and (b) plain tubes which were used as controls. The tubes were centrifuged at 1,400 r.p.m. for 10 min and supernatant discarded. The sediment in the control tubes were examined immediately while that in the tube containing formaldehyde was stored in the refrigerator at 4°C, and examined after 24 h.

Results

All samples had an abnormal content of white and red cells, casts and epithelial cells. The findings of the stored and fresh samples were essentially identical. This shows that formaldehyde was effective in preserving the cells and casts.

Discussion

Formaldehyde is generally used as a fixative, and its property for preserving tissue and cells is well recognized. Preserving the urine sediment with formaldehyde followed by refrigeration offers the benefit of postponing examination to a more convenient time.

Reference

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