

## Evaluation of Cytomorphological Changes in Urine Samples of Uremic Patients Undergoing Regular Hemodialysis

Arif S. Malik *FICMS*

Dept. Medicine, College of Medicine, Al-Nahrain University.

### Abstract

- Background** Dialysis is one of the common strategies of renal replacement therapy for patients with chronic renal failure; however it harbors significant cellular changes in various body fluids.
- Objective** To evaluate the cellular changes in urine samples of patients undergoing dialysis.
- Methods** Seventy-two fresh midstream, spontaneously voided urine samples, they were included in the study. Early morning samples were excluded, Duration of dialysis was taken into consideration (short term and long term dialysis). Samples were centrifuged at 3000 round per minute for 15 minutes, the supernatants were decanted and the sediments were examined cytomorphologically.
- Results** The gross appearance of all urine samples was neither purulent nor hemorrhagic. Microscopically there was an excessive shedding of urothelial cells in urine samples of patients undergoing dialysis compared with samples of the control group which showed evidence of normal shedding. There were no significant cytological atypia or malignancy in all urine samples. The excessive exfoliation in the absence of significant inflammation, hemorrhagic, or cytological atypia was compared with control group.
- Conclusions** The study revealed that some cytological changes do occur in the urothelial cells in patients undergoing dialysis; these changes need further attention to disclose their real causes.
- Key words** chronic renal failure, hemodialysis, cytomorphology, epithelial exfoliation

### Introduction

Chronic renal failure remains a major health problem. Dialysis (hemo- and peritoneal) is regarded one of the most common strategy of renal replacement therapy and the main sole for saving the life<sup>(1)</sup>. Urine cytology has an acceptable sensitivity and specificity. It is easy, cheap, quick, readily accepted by the patients, and can be repeated many times without the need for preparations of the patients for the test<sup>(2,3)</sup>. The most important accomplished cytology of urinary tract is the diagnosis of clinically suspected cases of carcinoma particularly carcinoma in situ<sup>(4)</sup>. Routine screening is performed for the detection and diagnosis of tumors and precancerous state of urinary tract, the

incidence of false positive and false negative result is 5% and 15% respectively<sup>(5,6)</sup>.

Various types of cells may appear during cytomorphological study of the urine samples including physiological exfoliation, transitional, squamous, columnar, traumatic exfoliation, red blood cells and cast<sup>(7)</sup>.

Dialysis (mainly peritoneal of any duration) can induce significantly atypical changes in mesothelial cells<sup>(8)</sup>.

The abnormal cells can be benign cytological findings, precancerous or neoplastic and dysplastic changes<sup>(9-12)</sup>.

Dialyses harbor some cellular changes in various body fluids<sup>(13-15)</sup>.