Biochemical Evaluation of Ultrafiltrate in Dialysis-Dependent HBsAg-Positive Patients

R.		Andrew
S.		Hariharan
V.	Vaskar	Saha
J.T.	Jacob T.	John
M.G.		Kirubakaran
J.C.M.		Shastri

Departments of Nephrology and Virology, Christian Medical College and Hospital, Vellore, India

J.C.M. Shastri, MD, Professor and Head, Department of Nephrology, Christian Medical College and Hospital, Vellore 632004 (India)

Sir,

Chronic hepatitis B surface antigen (HBsAg) carrier state is common among our maintenance haemodialysis patients [1,2]. Dialysis patients require periodic biochemical evaluation increasing the risk for laboratory personnel. Laboratory staff who handle HBsAg-positive blood are at a higher risk of developing HBsAg viral infection. We describe a new approach for routine biochemical evaluation of HBsAg-positive patients on maintenance haemodialysis. We studied 23 such patients. At the beginning of the dialysis ultrafiltrate (UF) was collected in a special sterile container. Forty-three samples of sera and an equal number UF samples were collected concomitantly from these patients. Blood was collected just prior to haemodialysis and UF was collected soon after the initiation of dialysis by the following technique: Negative pressure was applied in the range of 200–400 mm Hg with the help of a suction machine to the dialysate corn-

Phosphorus, mg% 4.78 ± 1.48 5.02 ± 1.74 NS

Uric acid, mg% 9.44 ± 1.28 9.99 ± 1.89 NS

Table I. Illustrating biochemical evaluation of UF and sera (means $\pm$ SD)

partment of the Cuprophan hollow fibre dialysers and UF was collected in a sterile container. Sera and UF were analysed for sodium, potassium, calcium, bicarbonate, phosphorus, uric acid, urea and creatinine by a Hitachi 750 auto-analyser. ELISA technique was employed to detect HBsAg. All UF samples were negative for HBsAg even though their corresponding sera were positive for HBsAg. UF calcium was lower than serum calcium ($p < 0.001$). This was expected as only ionic calcium can diffuse through the hollow fibre membrane. The values of other parameters studied were similar in UF and serum as given in table I.

UF was free of HBsAg. Except for calcium all the biochemical parameters routinely studied in maintenance haemodialysis patients were similar in UF and serum. Hence study of UF is an alternative to the study of serum. As there is no difference between serum and UF biochemical evaluation except for calcium, UF examination would be safe comparing to sera in HBsAg-positive patients.

References

- Thomas, P.P.; Kirubakaran, M.G.; Jacob, C.K.; Srinivasa, N.S.; Hariharan, S.; John, T.J.; Shastry, J.C.M.: Hepatitis B infection in a dialysis unit in South India. J. Ass. Physns India 55:284–285 (1987).
- John, T.J.; Shastry, J.C.M.: High titres of hepatitis B surface antigen in patients on chronic haemodialysis. Lancet /': 1029 (1979).