Abstract

Background: Chest ultrasonography has recently been shown to be useful for the non invasive assessment of extravascular lung water, Patients on maintenance hemodialysis are characterized by a condition of volume overload, these patients represent a unique model in which volume overload can be evaluated before and after a rapid fluid clearance determined by the dialytic session. Our aim of work was to assess efficacy of lung ultrasound in detecting extravascular lung water and volume over load.

Methods: Forty patients known as chronic renal failure patients on regular hemodialysis for more than 6 months were subjected to full history taking and physical examination, laboratory studies , echocardiography, and lung ultrasound, before and after dialysis session.Lung ultrasound and inferior vena cava measurements were performed immediately before and after dialysis. A standard echocardiography probe was used for the detection of lung comets. Examinations were performed in the supine position. Scanning of the anterior and lateral chest was performed on both sides of the chest,Lung comets (B lines) were calculated in 2 different planes both right and left (mid clavicular, mid axillary), to make total of 8 intercostal spaces examined for lung comets.

Results: Our study showed highly significant reduction of pulmonary B-lines (ULCs) following dialysis, significant linear regression between B-lines percentage reduction (delta B-lines %) and delta weight (kg), significant reduction in end inspiratory and end expiratory vena cava diameter, Also our study showed significant association between expiratory IVC diameter before dialysis and accumulated weight in respect to dry weight, but did not show significant association between expiratory vena cava diameter after dialysis and residual weight in respect to dry weight.

Conclusion: Ultrasound performed at the bedside can detect lung water and intravascular overload and their reduction after dialysis in yet asymptomatic patients.

Key words: Lung ultrasound, B-lines, Hemodialysis.