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The effect of serum uric levels on hemodialysis efficacy among population in Saudi Arabia

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Background: The high prevalence of morbidity and mortality observed in patients with end stage renal disease (ESRD) is mainly attributed to inadequacy of hemodialysis (HD). The proposed approaches that have been used to optimize HD performance are not fully successful. Part of this frustrating situation may be attributed to poor understanding of the factors affecting the HD process, including patient's serum uric levels (UA). In the current study we aimed to assess the relationship between serum UA levels and hemodialysis efficiency among ESRD patients in Hail, Saudi Arabia.

Methods: A total of 255 hemodialysis patients (102 males and 153 females) were enrolled in this retrospective study. The range was 25 to 83 years with median age of 51 years. Blood samples drawn from patients before and after the hemodialysis session were analyzed for urea, creatinine, and uric acid.

Results: We found that the proportion of female patients with ESRD was significantly higher (60 %; $p < 0.05$), than the males in the patient group examined. Among hemodialysis patients, the incidence of hypertension was 86 % ($p < 0.05$). There was a negative association between UA and HD efficiency in patients aged less than 50 years. In addition, a significant correlation was observed between levels of UA and urea ($r = 0.579$ $p < 0.001$) and creatinine ($r = 0.736$ $p < 0.001$).

Conclusions: Taken together, the results of this study indicate that the hemodialysis efficiency in HD subjects, particularly in the < 50 years of age may be improved by lowering the serum uric levels.

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Page 95