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Radioactive I-131 Treatment of The Hyperthyroid Patient with Severe Chronic Kidney Disease on Hemodialysis: Patient and Staff Considerations, A Multidisciplinary Approach

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Treating the hyperthyroid patient on hemodialysis with radioactive iodine I-131 can be problematic since the main route of excretion of I-131 is via the kidneys. In addition to patient dosing concerns, there are additional radiation safety issues concerning the patient as well as the hemodialysis staff and equipment. To date, there are very few reports in the literature regarding I-131 treatment of patients on hemodialysis for hyperthyroidism, and prospective studies on this topic do not exist.

We report the case of a 43-year-old female with systemic lupus erythematosus, complicated by end stage renal disease (ESRD) requiring hemodialysis (HD), with subsequent development of Grave's disease. The patient was initially treated with methimizole, which was discontinued secondary to complications of leukopenia, with subsequent request to the Nuclear Medicine service for treatment with radioactive iodine. This exhibit will review our patient's case presentation and subsequent treatment course, along with review of the limited literature regarding I-131 treatment of hyperthyroid patients on hemodialysis. Various considerations to be reviewed in this exhibit include: potential adjustment to the dosing of I-131 due to impaired renal function, the timing of hemodialysis, and radiation safety concerns, including exposure to the patient, HD personnel, as well as to the dialysis equipment.