

Title: Case Report: IFN β causing Focal segmental glomerulosclerosis in Multiple Sclerosis patient**Author(s): Abdul R Al Armashi MD , Ayesha Khan MD , Keyvan Ravakhah MD****Affiliation:** St. Vincent Charity Medical Center

Interferon β is the first-line treatment of relapsing-remitting multiple sclerosis. Side effects are both dose-dependent and idiosyncratic toxicity. There have been rare reports of Interferon β causing Acute Renal Failure and Nephrotic Syndrome, including Focal Segmental Glomerulosclerosis. Our patient is a 53-year-old Caucasian female with a past medical history of Multiple Sclerosis diagnosed 12 years ago, medically treated with IFN- β . She presented to The Nephrology clinic as her routine labs showed elevated serum creatinine. She had no new complaints. Physical examination was significant for bilateral ankle swelling. Lab work was significant for elevated serum creatinine, elevated blood urea nitrogen, decreased albumin, and elevated total cholesterol. Urinalysis showed heavy proteinuria (protein/creatinine ratio 4.8g/g), and albuminuria (albumin/creatinine ratio 3.2g/g). Renal Ultrasound revealed increased cortical echogenicity in the right kidney. The patient subsequently underwent renal biopsy, which confirmed glomerulopathy with moderate glomerulosclerosis, segmental foot effacement, renal tubular injury, and microvillus changes. Due to the absence of classical risk factors for Focal Segmental Glomerulosclerosis, a presumptive diagnosis of medication-induced Focal Segmental Glomerulosclerosis was made. The offending drug was stopped and the patient was started on Steroids and Immunomodulators. She had complete recovery of her kidney function within 6 months. This case represents a rare adverse effect of IFN- β , the mechanism interferon β induces kidney damage is mediated by impairing the charge barrier of the glomerular basement membrane due to an interaction between its positive charge and the negatively charged glomerular basement membrane. Physicians should draw attention to symptoms and findings of nephropathy during the management of patients under treatment of IFN- β , as routine follow-up labs do not include renal function test and urinalysis.