RENNAL ALLOGRAFT ACCUMULATION OF
TECHNETIUM-99M SULFUR COLLOID AS A PREDICTOR
OF GRAFT REJECTION

Einollahi B, Bakhtiari P, Amirjalali R, Nafar M, Porrezagholi F,
Firoozan A
Kidney Transplant Department, Baghiatollah University of Medical
Science, Tehran, IRAN

A perplexing issue in diagnosing the cause of renal allograft
dysfunction is differentiation between rejections—the most common
cause—and many other possibilities that have detrimental effects on
graft function. This study was designed to determine whether
technetium-99m sulfur colloid (TSC) accumulation could predict
graft rejection. We prospectively studied 54 episodes of allograft
dysfunction in 53 kidney transplant recipients who had undergone
TSC scintiscanning and graft biopsy, within one week of evidence of
allograft dysfunction. Visual analysis of TSC uptake was done by
comparing allograft uptake with that of the fifth lumbar vertebra (L5)
marrow. A 3+ result meant that allograft uptake was greater than L5
marrow uptake; 2+, allograft uptake was the same as L5 marrow
uptake; 1+, less than and finally 0, no allograft uptake. Transplant
accumulation of more or equal 2+ was considered consistent with
rejection (P=0.01). Allotransplant biopsies were interpreted based on
the Banff Working Classification and rejection was noted in 45 of 54
renal biopsies. 42 of 45 biopsy -proven rejection episodes had more
or equal 2+ graft uptake. This nuclear medicine technique has a
sensitivity of 93.3%, specificity of 44.4%, a positive predictive value
of 89.3%, a negative value of 57.1% and an efficiency of 83.3% in
the diagnosis of renal allograft rejection. In a retrospective analysis,
among 500 recipients we found 101 patients (20.2%) with persistent
elevation of hematocrit value (PTE). It was more frequent in males
(82.2% and 17.8% in men and women, respectively). It occurred 2 to
50 months after engraftment (mean value was 11.2 ±8.9 months),
majority of PTE which developed in the first 24 months (86%).
Spontaneous remission of established PTE was observed in all cases
within 3 to 93 months. PTE frequently occurred in patients with
well-functioning renal graft, in 82.2% of cases the serum creatinine
concentration was less than 1.5 mg/dl and it was 1.5-2 mg/dl in
15.8% of patients. There was no correlation between diabetes
mellitus and PTE, compared with control group. PTE was more
common in patients who received cyclosporine as compared to those
who were not on cyclosporine. In conclusion, Post-transplantation
erythrocytosis is a frequent problem in renal transplant patients.
Predisposing factors include male gender, retention of native
kidneys, cyclosporine consumption and rejection-free course with
well-functioning renal graft. PTE is a self-limited complication but
can result in thromboembolic disease.