

Cyclosporine is Not the drug of choice for renal transplanted patients and increases the risk of cardiovascular and cerebrovascular accidents

UNIVERSITÀ
DELLA CALABRIA



Javeria Fazal
University of Calabria

1 Introduction

The aim of the study was to investigate if the average Pakistanis and average Italian kidney post transplanted patients have same episodes of adverse events after intake of cyclosporine, tacrolimus and corticosteroids.

Objective

Also to green light the safest as well as hazardous drug among these three and to explain the appropriate reasons for effectiveness and ineffectiveness of the respective drug.

2 Methods

The subjects were randomly selected including 706 pakistani and 568 italian patients both male and female with inclusion criteria of teen age and geriatric patients as well to estimate the clinical response. Blood sample was taken from each subject in order to determine the amount of creatinine, glucose, hemoglobin and cholesterol which are ultimate parameters for cardiovascular and cerebrovascular accidents. Urine sample was also taken in order to determine level of protein. Also DFG (Delayed Graft Function) was observed in these subjects.

3 Results

31% of Italian men and 26% of Italian women (out of 568 italian patients) suffered from hypercreatinemia and hyperproteinuria including hemoglobinemia and hypercholesterolemia and only a minority of sample population was subjected to hyperglycemia whereas 22% of Pakistani men experienced same adverse effect but for Pakistani women the percentage was 21.50 (out of 706 pakistani patients). The sample was selected from different age groups but it was observed that majority of adverse effects were found between age group 46-55 and the percentage of occurrence of adverse effects was found to be least between age group 17-25.

5 Conclusions

It was concluded that for immuno-compromised patients DGF (Delayed Graft Function), mortality rate and risk of transplant failure has been shown minimum for corticosteroids, intermediate for tacrolimus and maximum for cyclosporine [4]. And for immuno-competent patients, tacrolimus was effective drug.

Also it was observed that patient's adherence was maximum with corticosteroids as they produce synergistic effect with adrenal gland's steroid production thereby suppressing immune system with diminished adverse effects and was gradually decreasing as we move from tacrolimus to cyclosporine. These data suggest that immuno-suppressant drugs should be monitored with special care depending upon the immune status of the patient [5].

4 Discussion

Average pakistani and italian patients encountered almost same Adverse effects after use of the above mentioned Immunosuppressants. Further the data revealed that Cyclosporine was the leading drug in order to give a series of Adverse events corresponding to Cardiovascular and Cerebrovascular accidents. Furthermore my results support and augment these findings by showing that abnormal kidney function gives favourable place for growth of many bacterias and ultimately level of protein become raise [1]. Hence there will start competitive binding between these proteins and cyclosporine as cyclosporine itself is composed of 11-amino acids so those having same 'R' functionality with the attaching side of cyclosporine will compete and finally cyclosporine will not be available to bind with its receptor and will give rise to series of adverse episodes [2][3].

* Literature Citations

[1] Conversion from cyclosporine to tacrolimus in patients at risk for chronic renal allograft failure: 60 month results of the CRAF study by Shihab; Transplantation. 2008 May 15; 85(9):1261-9.

[2] Cyclosporin A augments human platelet sensitivity to aggregating agents by increasing fibrinogen receptor availability. J Surg Res 1991; 51: 93-98.

[3] Systemic hypertension associated with cyclosporine. Drug Intell Clin Pharmacol 1988; 22: 443-450.

[4] Cyclosporine Immunosuppression and Delayed Graft Function in 455 Cadaveric Renal Transplants, Transplant Proc. Author manuscript; available in PMC 2010 Jul 14. Published in final edited form as: Transplant Proc. 1987 Feb; 19(1 Pt 3): 2100-2103.

[5] Cyclosporine-associated chronic nephropathy by Myers BD, Ross J, Newton L, Luetscher J, Perlroth M. N Eng J Med. 1984 Sep 13; 311(11): 699-705.

Future Research Plans

My future plans relate to transform my dissertation into a book by doing innovative work in field of Pharmacovigilance which leads to extension of my MS research program with use of highly advance research techniques in order to analyze structural activity relationship.