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Developing a rational for an appropriate immunosuppressive regimen in lung vs kidney transplant recipients

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Objectives: Lung transplant is associated with a high rate of complications in comparison with kidney transplant, specifically related to surgical complications, infections and acute rejection as well as a lower overall graft survival. We studied the circulating cytokine profile following transplantation to better understand the factors driving the immune response to the allograft in order to know how to design a more rational therapeutic approach to transplantation

Methods: We included in the study 8 lung and 7 kidney transplant patients. Serum samples were obtained pretransplant and days 1, 2, 3, 4, 14 and 30 posttransplant. A cytokine profile including 26 cytokines was analyzed by Luminex. We compared the difference in cytokines between the kidney and lung transplant patients.

Results: The general characteristics of the total sample and of kidney and lung transplant are presented in Table 1. Basiliximab was used as induction therapy in all the lung transplant patients, Thymoglobuline being the induction therapy used most in kidney transplant patients. The rate of infections and the days of hospitalization were higher in the lung transplant group. Immediate function of lung transplant allograft, define by extubation the first day posttransplant, was achieve in 4 of the lung transplant patients. There were no episodes of acute rejection in either group.

Conclusions: Our results suggest that the rapid increase in some inflammatory cytokines 24 h posttransplant may be an indicator of worse function in the lung transplant patients. These results need to be confirmed with a larger number of patients. Thymoglobulin as induction therapy may be responsible for the lower levels of most cytokines in the kidney transplant group. The fact that the level of IL-6 was higher in the lung transplant group may indicate a benefit for the use of anti-IL6 as induction therapy in these patients.

Table 1. Characteristics of the Kidney and Lung transplant groups

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	Total (n=27)	Kidney Transplant (n=10)	Lung Transplant (n=17)
DEMOGRAPHIC AND CLINICAL CHARACTERISTICS			
Age (years)	57 (12)	51 (14)	60 (8.4)
Sex (% men)	59.26	50	64.7
Caucasian race (%)	88.8	80	94.1
Serum creatinine pre-transplant (mg/dL)	3.59 (4.54)	8.3 (4.49)	0.81 (0.16)
CHARACTERISTICS DURING/POSTRANSPLANT			
Triple therapy (Fk, MMF and steroids) (%)	81.5	90	76.4
Induction therapy Basiliximab / Thymoglogulin (%)	77.7 / 22.2	40 / 60	100 / 0
Infection (%)*	37	20	47
Days in-hospital	16.7 (12.7)	7.4 (2.19)	27.13 (16.4)
Diabetes mellitus treatment post-transplant (%)	62.9	40	76.4

Values of age, serum creatinine and days in-hospital are expressed as mean (SD).
*** Infections were Cytomegalovirus infection in kidney transplant patients, and bacterial and fungal infections in lung transplant patients.**
Abbreviations: Fk, Tacrolimus; MMF, Mycophenolate mofetil.

Figure 1. Change in the levels of cytokines between the kidney and lung transplant groups