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Development of De Novo Anti-HLA Antibodies in Kidney Transplant Recipients

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Objectives: The risk factors associated with the development of post-transplant *de novo* anti-HLA antibodies in unsensitized kidney transplant recipients remain inadequately characterized. The Clinical Trials in Organ Transplantation CTOT-02/CCTPT-02 study was a prospective multicenter clinical trial designed to identify subjects who developed *de novo* anti-HLA antibodies following kidney transplantation.

Methods:

Unsensitized subjects were enrolled after kidney transplantation and monitored at 3-month intervals for antibody development for at least two years and as long as 5 years.

Results: Among 653 subjects from 18 centers ranging in age from 3 to 70 (median age, 45) years, 79 subjects (12%) developed at least one *de novo* anti-HLA antibody. Multivariate analysis indicated that pediatric subjects were significantly more likely to develop anti-HLA antibodies compared with subjects >18 years old. On the other hand, use of anti-IL-2R antibody induction therapy was protective against anti-HLA antibody development. The presence of *in vitro* complement (C1q) binding antibody was associated with rejection (OR=4.80 (1.39-16.59), p=0.013).

Conclusions:

In a low risk kidney transplant population, the risk of developing anti-HLA antibodies was greater in children <18 years of age compared with adults, and greatest in young children (<12 years). Induction with an anti-IL-2R antibody was protective against the development of anti-HLA antibodies regardless of age.