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Gender differences in immunological sensitization of kidney transplant candidates: higher cPRA in women in a tertiary hospital in Quito, Ecuador.

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Dear editor

Kidney transplantation (RT) is the definitive treatment for advanced chronic kidney disease when candidates are chosen based on strict clinical and histocompatibility criteria. The availability of cadaveric donors has increased the number of procedures and, as a result, the survival and quality of life for recipients. However, the presence of preformed antibodies against HLA antigens remains a challenge: high levels of sensitization—traditionally measured by %PRA—are associated with a higher risk of acute rejection and graft failure. The calculated antibody reagent panel (cPRA) improves this assessment by considering the HLA antigen frequency of the donor population and has become the primary indicator of match likelihood [1]. Despite its usefulness, there is limited data on how cPRA performs in Latin American populations, especially regarding biological sex.

To investigate potential differences in the sensitization profile, we compared the cPRA values between men and women enrolled in the Single National List for TR from cadaveric donors at Armed Forces Specialty Hospital No. 1, Quito. A descriptive, cross-sectional observational study was designed using secondary data from SINIDOT. For each candidate, age, blood group, and cPRA levels were recorded. Qualitative variables were expressed as percentages, and quantitative variables as medians with interquartile ranges (IQR). The difference in cPRA by sex was assessed using the Mann-Whitney U test; proportions were compared with χ^2; and the strength of associations was measured with odds ratios (OR). R v4.3.2 was used.
A total of 100 recipients were analyzed (median age 49 years, IQR 24.5); 56% men and 44% women. The predominant blood type was O (80%). PRA positivity was 30% for HLA class I and 28% for class II. The median overall cPRA was 0% (0–100; IQR 22.25). When stratified by sex, PRA class I positivity reached 18% in women and 12% in men (OR 2.5; p = 0.04); for class II, it was 20% versus 8%, respectively (OR 5; p = 0.001). The median cPRA in men was 0% (0–95; IQR 0), while in women, it was 17.5% (0–100; IQR 62.5), reflecting a statistically significant difference (p < 0.001). This higher immune burden in women—probably related to exposures during pregnancy, transfusions, or previous interventions—suggests three clinical implications: 1. Equity of access to transplantation: a higher cPRA prolongs the wait and increases the morbidity and mortality associated with prolonged dialysis. 2. Need for desensitization strategies: the implementation of targeted protocols (immunoadsorption, IVIg, co-stimulator blockade) could mitigate the gender gap. 3. Recalibration of local algorithms: creating our own HLA frequency tables would enhance the accuracy of cPRA calculations and allow for a fairer prioritization of highly sensitized patients. There is a significant disparity in HLA sensitization among women who are candidates for RT, so national programs should consider these differences when designing allocation policies and developing targeted desensitization interventions.

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Abbreviations
TR: Kidney transplant.
cPRA: calculated antibody reagent panel.
HLA: Human leukocyte antigen.

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Jorge Huertas: Methodology, Research, Writing – Original Draft.
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References

1. Lan JH, Kadatz M, Chang DT, Gill J, Gebel HM, Gill JS. Pretransplant Calculated Panel Reactive Antibody in the Absence of Donor-Specific Antibody and Kidney Allograft Survival. Clin J Am Soc Nephrol. 2021 Feb 8;16(2):275-283. doi: 10.2215/CJN.13640820. Epub 2021 Jan 25. PMID: 33495290; PMCID: PMC7863647.

2. Bromberger B, Spragan D, Hashmi S, Morrison A, Thomasson A, Nazarian S, Sawinski D, Porrett P. Pregnancy-Induced Sensitization Promotes Sex Disparity in Living Donor Kidney Transplantation. J Am Soc Nephrol. 2017 Oct;28(10):3025-3033. doi: 10.1681/ASN.2016101059. Epub 2017 May 8. PMID: 28483798; PMCID: PMC5619956.

3. Carrión D, Espinoza D, Medina J, Orellana I, Rivera M, Merchán P, et al. Trasplante renal con donante vivo vs donante cadavérico. Experiencia de 4 años en el hospital José Carrasco Arteaga. Revista Médica HJCA 2011;3(2):148-148. Revista_HJCA/561

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