

CONCORDANCE BETWEEN VIRTUAL AND PHYSICAL CROSSMATCHES IN CADAVERIC KIDNEY TRANSPLANTATION

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Physical crossmatch (CM) continues to serve as the gold standard for confirming immunological compatibility between donor and recipient prior to transplantation. However, virtual CM, which integrates donor HLA genotyping with recipient antibody profiling via advanced immunological software, emerged as a powerful predictive tool for assessing transplant compatibility and transplant outcomes.

We analyzed the concordance between virtual CM conducted at donor centers and physical decisive CM performed at recipient center for cadaveric kidney transplantation. This analysis focused on the 2023–2024 period, during which Eurotransplant formally integrated virtual CM into the organ allocation protocol.

Across this period, a total of 1009 physical CMs were performed in our laboratory including 351 recipients and 190 cadaveric donors. The physical CMs were negative in 98.12% of cases, with only 19 (1.88%) test yielding positive results, affecting 12 out of 351 (3.42%) recipients. Two patients had repeated positive CMs with multiple cadaveric donors (6 and 3 respectively) primarily due to Rituximab therapy, while other contributing factors to the positive CMs included undocumented blood transfusions and potentially presence of non-HLA antibodies.

Our results underscore the reliability of virtual CM as a predictive tool for physical CM outcomes and an effective method for patient evaluation prior to transplantation. However, caution is required for potential unreported immunogenic events, emphasizing the need for maintaining close collaboration between immunologists and transplant team to ensure optimal transplant outcomes.

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