

**PERIPHERAL CHEMOSENSOR ACTIVITY AFTER KIDNEY
TRANSPLANTATION IS MODULATED BY NEUROHUMORAL ADAPTATIONS**

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Peripheral chemoreceptors residing predominantly in the carotid body monitor changes in arterial blood oxygen and are mechanistically linked to the cardiorespiratory control by the autonomic nervous system. Enhanced sympathetic activation is common in chronic kidney disease and kidney transplantation has been shown to improve cardiorespiratory reflex measures of autonomic function. The aim of the present study was to test whether improvement in renal function following kidney transplantation is related to an improvement in chemosensor function. We therefore compared hyperoxic chemoreflex sensitivity (CHRS) in patients on maintenance hemodialysis (HD) to those of age- and gender-matched healthy individuals and those of patients after renal transplantation (RTX). In addition, we investigated the impact of common confounding factors including pharmacological neurohumoral modulation and diabetes mellitus. The difference in the R-R intervals divided by the difference in the oxygen pressures before and after deactivation of the chemoreceptors by 5-min inhalation of 7 L oxygen was calculated as the hyperoxic CHRS. Autonomic activity was characterized by 24-h time-domain heart rate variability (HRV) parameters. CHRS was improved in RTX patients as compared to HD patients being related with HRV. CHRS was related with the concomitant presence of diabetes and medication with cyclosporine. Our findings indicate that chemosensor activity following kidney transplantation is related to cardiac autonomic control but functional testing might only be useful to characterize the time course and extent of sympathetic activation in selected patients due to existing comorbidities and immunosuppressive medication in this population.