



## Conference Abstract

# P.61 Impact of Kidney Transplantation on Arterial Reservoir-Wave Analysis

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### Keywords

Kidney transplantation  
reservoir-wave analysis

### ABSTRACT

**Purpose/Background/Objective:** According to reservoir-wave approach (RWA) arterial pressure is the sum of a reservoir pressure (RP) accounting for dynamic storage and release of blood from arteries, and an excess pressure (XSP) analogous to flow. RP is the minimal left ventricular work required to generate aortic flow, while XSP corresponds to surplus cardiac workload. We have previously shown that kidney transplantation (KTx) improves aortic stiffness [1], however, by adding renal vessels to existing vascular network, KTx may increase cardiac output. Thus, we aimed to examine whether XSP increases after KTx.

**Methods:** Before and 3 months after KTx, carotid pressure waves were recorded using arterial tonometry, calibrated using brachial diastolic and mean blood pressure. Using pressure only approach, reservoir-wave analysis was used to derive RP, XSP and their integrals (RPI, XSPI). RWA parameters were compared with Wilcoxon non-parametric test using SPSS 26.0.

**Results:** 75 patients (69% male, mean age  $51 \pm 13$  years) were assessed. Three months after KTx, both carotid RP ( $121.2 \pm 20.7$  vs  $103.5 \pm 15.7$ ,  $p < 0.001$ ) and RPI ( $11192.52 \pm 2763.11$  vs  $9531 \pm 1978$ ,  $p < 0.001$ ) decreased significantly, but carotid XSP and XSPI remained unchanged. Carotid systolic ( $131.0 \pm 23.2$  vs  $114.1 \pm 15.5$ ,  $p < 0.001$ ) and diastolic ( $83.4 \pm 11.9$  vs  $72.8 \pm 9.93$ ,  $p < 0.001$ ) blood pressures were also reduced.

**Conclusion:** KTx decreased reservoir pressure, suggesting a decrease in minimal cardiac workload. However, we did not see an increase in excess pressure or its integral, suggesting that addition of a donor renal artery does not significantly alter cardiac outflow and excess workload 3 months after KTx.

### REFERENCE

- [1] Desjardins MP, Sidibé A, Fortier C, Mac-Way F, De Serre S, Larivière R, et al. Impact of kidney transplantation on aortic stiffness and aortic stiffness index  $\beta_0$ . *J Hypertens* 2019;37:1521–8.

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