

MASKED HYPERTENSION IS ASSOCIATED WITH A HIGH CARDIOVASCULAR RISK IN HYPERTENSIVE KIDNEY TRANSPLANT RECIPIENTS

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Objective:

High blood pressure (BP) is a major risk factor for graft function in kidney transplant recipients (KTs). Our aim was to evaluate BP control in the office, but also in the ambulatory and home settings, in stable KT, all treated for hypertension, and to characterize patients with masked hypertension (MHT).

Methods:

3 BP measurement techniques: Office blood pressure, sitting position; 24-h ambulatory BP monitoring (discriminating day and night periods) Spacelabs 90207; 7 days recording of home BP (HBP) monitoring (OMRON M6), 2 BP morning/2 BP evening.

Carotid-femoral pulse wave velocity was measured (SphygmoCor) as well as a calcification score (arteries) and the systolic ankle brachial index (ABI) as recommended.

Results:

Uncontrolled hypertension (HTN) remained frequent in our treated population, 46 % were still hypertensive in the office, 39% using ABPM and 43% with HBP. The proportion of MHT was 22% whatever the out-of-clinic method used, with more males, older and more overweight. Interestingly when compared with controlled KT (i.e. both OBP and Daytime ABP controlled or both OBP and HBP controlled), patients with MHT had significantly higher PWV, a higher calcification score (x ray) and a higher rate of $ABI > 1.3$ (on graph) corresponding to stiff arteries.

However we did not find any significant impact of graft survival, GFR, CRP, smoking habits, diabetes, alcohol use or immunosuppressive drugs although MHT patients were more frequently treated with cyclosporine.

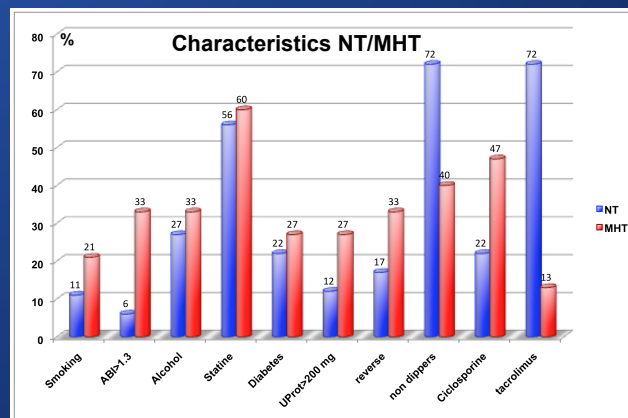
Conclusion:

A high percentage of uncontrolled HTN was noted by OBP, but also by ABPM and HBP despite antihypertensive treatment. MHT was frequently observed in KT. This particular HT phenotype, either defined by OBP vs ABPM or by OBP vs HBP, was significantly associated with major markers of arterial stiffness. So, our observations support that in KT masked hypertension is obviously associated with a high cardiovascular risk profile.

Ambulatory BP measurements (24-h or/and home BP) are necessary to identify such patients allowing a treatment adaptation to reduce incidence of cv events and graft loss.

| General Characteristics (n=70) | |
|--------------------------------|------------------|
| men/women (n) | 43/27 |
| Age (y) | 56±11.5 |
| BMI (kg/m ²) | 25.8±4.7 |
| Diabetes | 19(27%) |
| Current smokers | 9(13%) |
| HD vintage (y) | 2.7±3.7 |
| Graft survival (y) | 7±6.6 |
| GFR (cockcroft, ml/min) | 65.6±24 |
| OSBP/ODBP (mmHg) | 136(±14)/83(±12) |
| HSBP/HDBP (mmHg) | 135(±12)/82(±10) |
| 24-h SBP/24-h DBP (mmHg) | 133(±10)/80(±9) |

| Antihypertensives drugs | |
|-------------------------|---------------|
| mean number | 2.1±1.0 (1-5) |
| Diuretics | 21 (30%) |
| Beta-blockers | 48 (68%) |
| CCB | 35 (50%) |
| ACE | 21 (30%) |
| ARB | 14 (20%) |
| centrally acting | 9 (13%) |



| | MHT | NT | P* |
|------------------------------|-----------------|-----------------|---------|
| men/women | 12/3 | 10/8 | |
| Age | 60.1±11.8 | 53.6±10.6 | 0.047 |
| BMI (kg/m ²) >25 | 27.5±3.7 69% | 23.8±4.5 44% | 0.028 |
| HD vintage (months) | 23.8±16.5 | 48.2±82.7 | 0.328 |
| Graft survival (years) | 8.5±9 | 5.3±4 | 0.33 |
| GFR(ml/min) | 74.4±23.2 | 62.3±26.1 | 0.17 |
| CRP(mg/l) | 2.4±2.6 | 3.1±4.9 | 0.6 |
| Antihypert. Drugs (n) | 2±1 | 2.2±1 | 0.69 |
| OSBP (mmHg) | 130±6 | 125±10 | 0.092 |
| ODBP (mmHg) | 79±7 | 75±10 | 0.21 |
| HPAS (mmHg) | 138±6.4 | 123±9 | <0.0001 |
| HPAD (mmHg) | 83±7.4 | 74±8.4 | 0.004 |
| Day PAS (ABPM) | 134±6.2 | 127±8.3 | 0.009 |
| Ca score | 6.3±5.0 | 2.2±4.1 | 0.043 |
| PWV (m/s) | 9.7±3.0 | 7.9±1.6 | 0.03 |

* U Mann-Whitney test