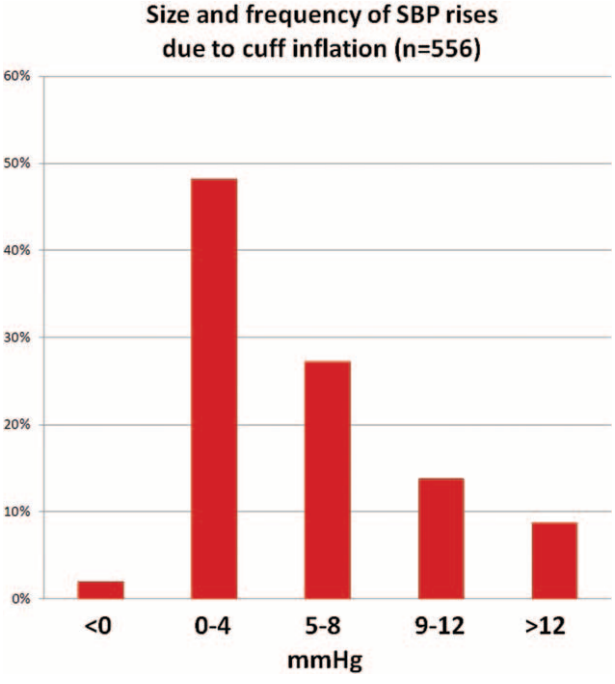
BP was recorded beat-to-beat based on PTT (SOMNOtouch NIBP, SOMNOmedics GmbH) on the contralateral arm. In addition we recorded a 3-channel ECG, motoric activity, finger plethysmogram, oxygen saturation and the cuff pressure to synchronize both methods. An automatic sleep/wake analysis based on the activity profile revealed true SBP values during sleep. SBP increases due to cuff inflation were assessed using the difference of mean SBP over 3 sec before cuff inflation and the maximum SBP during cuff in-/deflation.



Results: In total we analysed 556 SBP cuff recordings. We found insignificant SBP rises of 0–4 mmHg in 50% of all cuff recordings, likely due to respiratory variations. Significant SBP increases of 5–8 mmHg were found in 27%, increases of 9–12 mmHg in 14% and increases >12 mmHg in 9% of all cuff inflations. A SBP decrease was observed in 2% of all recordings.

Conclusions: This study shows that cuff-based ABPM during sleep disturbs sleep architecture, causing arousals, and induces significant increases in SBP. We found considerable SBP increases >9 mmHg in 23% of all cuff recordings. Given that cuff-based ABPM is a cause of sleep disturbance, the continuous and non-reactive PTT method is of great clinical importance especially during night-time.

OP.7D.04 NOCTURNAL HYPERTENSION AND PROGRESSIVE RENAL FUNCTION LOSS IN RENAL TRANSPLANT PATIENTS

F. Mallamaci, G. D'Arrigo, R. Tripepi, D. Leonardis, G. Porto, A. Testa, S. Abd Elhafeez, A. Mafrica, M.C. Versace, F. Provenzano, G. Tripepi, C. Zoccali. *CNR-IFC & Nephrology, Dialysis and Transplantation Unit, Reggio Calabria, Italy*

Objective: Hypertension is considered as a long-term, non-immunological risk factor for renal function loss in kidney transplant patients. However, there are no longitudinal studies focusing on the relationship between golden standard BP measurements (24 h ambulatory BP) and the GFR evolution over time in renal transplant patients.

Design and method: In a cohort of 260 renal transplant patients we investigated the relationship between the main components of the 24 h ABPM profile (daytime and night time average BP) with the evolution of the GFR over time (by the linear mixed model, LMM) and with the time to a combined end point (>30% GFR reduction, dialysis/transplantation and death) by Cox's regression analysis. On average, 48 longitudinal eGFR measurements were available and 211 patients (81%) had more than 20 measurements over a follow up period ranging from 2 days to 12 years. The predictive values of non-nested models including an identical set of standard risk factors and each BP component were assessed by the -2 LL statistics.

Results: In the analysis by the LMM adjusting for a large series of potential confounders (baseline GFR, gender, age, BMI, diabetes, smoking, 24 h urinary protein, cholesterol, hemoglobin, albumin, phosphate and the immunosuppressive drug combinations) both day time and night time BP were significantly related to longitudinal eGFR measurements ($P < 0.01$) but the LMM-based on night time BP provided a better data fit (by −2 LL statistics) than that based on day time BP. During the follow-up period, 123 patients experienced the combined end point, and the model based on night time BP provided the best data-fit for predicting the outcome.

Conclusions: Ambulatory BP measurements coherently predict the risk of GFR loss over time and the risk of developing a combined renal end-point. Night time BP is a stronger indicator of the risk of progression of renal disease than day time BP. These findings optimization of BP control may slow the rate of GFR loss in renal transplant patients and suggest that interventions targeting night time BP may afford renoprotection superior to that of day time BP.

OP.7D.05 NEED FOR FOREARM BLOOD PRESSURE REFERENCE VALUES AT HEART LEVEL

M. Stojanovic[1], T. Nisic[1], J. Ciric[1], M. Stojkovic[1], S. Savic[1], B. Beleslin[1], B. Parapid[2], V. Stojanov[2], M. Zarkovic[1]. [1]*Clinic for Endocrinology, Diabetes and Disease of Metabolism, Clinical Center of Serbia, Belgrade, Serbia,* [2]*Clinic for Cardiology, Clinical Center of Serbia, Belgrade, Serbia*

Objective: The increasing number of obese people presents a very serious clinical challenge to doctors being faced with the inaccurate measuring blood pressure (BP) in patients with very large arms. Studies comparing forearm and upper-arm cuff occlusion have given conflicting results. It is likely that higher BP readings are obtained with forearm measurement. Our clinic took part in the International Ambulatory Blood Pressure Registry: Telemonitoring of Hypertension and Cardiovascular Risk Project (ARTEMIS). In order to obtain normal values of forearm blood pressure at heart level in population we analyzed sample of patients with normal ambulatory blood pressure monitoring (ABPM) values.

Design and method: Two hundred and fifty-eight patients with normal ABPM values were studied from the ARTEMIS project. Mean body mass index was 24 +/−7 kg/m^2. Before positioning the Meditech ABPM 05 device patients had three upper-arm and three forearm BP taken by Meditech ABPM 05 device using extra measurement option. Arm was supported at heart level and appropriate cuff was used. Mean BP was calculated from three BP consecutive measurements. Student's t-test was used to analyze the data.

Results: Systolic and diastolic upper-arm BP measurements were significantly lower than forearm BP measurements. The measurements obtained by ABPM were significantly lower than those found for forearm systolic and diastolic blood pressures.The mean age was 36.4+/−12.6 years. There were 152 females. Mean forearm, upper- arm and ABPM systolic BPs were 132.6 +/− 18.5 mmHg, 127.3 +/− 17.4 mmHg and 123.3 +/− 15.6 mmHg respectively. Mean forearm, upper- arm and ABPM diastolic BPs were 84.8 +/− 13.4 mmHg, 79.6 +/− 12.4 mmHg and 74.8 +/− 14.6 mmHg respectively.

Conclusions: This study showed that we need forearm blood pressure reference values at heart level because there is significant difference between forearm and upper-arm BP measurements. More often doctors are faced with the inaccurate measuring BP in patients with very large arms.

OP.7D.07 24-HOUR CENTRAL BLOOD PRESSURE IS BETTER ASSOCIATED WITH TARGET ORGAN DAMAGE OF HYPERTENSION THAN BRACHIAL BLOOD PRESSURE: THE VASOTENS REGISTRY

S. Omboni[1], I.N. Posokhov[2], G. Parati[3], V.S. Barkan[4], E. Cardona Munoz[4], E.A. Grigoricheva[4], I.E. Minyukhina[4], M.L. Muiesan[4], G. Mule'[4], I.A. Orlova[4], T. Pereira[4]. [1]*Clinical Research Unit, Italian Institute of Telemedicine, Varese, Italy,* [2]*Hemodynamic Laboratory Ltd, Nizhniy Novgorod, Russia,* [3]*Dept. of Cardiology, Istituto Auxologico Italiano and Dept. of Medicine and Surgery, University of Milano-Bicocca, Milan, Italy,* [4]*The VASOTENS Registry Study Group*

Objective: The VASOTENS international, multicenter, observational, non-randomized, prospective study aims at evaluating the impact of 24-hour pulse wave analysis of ambulatory blood pressure (BP) recordings on target organ damage and cardiovascular prognosis of hypertensive patients. In the present analysis of study baseline data we checked whether organ damage of hypertension i) is better associated with 24-hour central than peripheral BP and ii) is related to ambulatory arterial stiffness, estimated by pulse wave velocity (PWV) and augmentation index (AIx).

Design and method: In 334 hypertensive patients (mean age 53+/-15, 52% males, 45% treated) we obtained 24-hour ABPMs, echocardiograms, carotid

ultrasonograms and serum creatinine. Hypertensive organ damage was estimated by calculation of left ventricular mass index (LVMI, cardiac damage), intima-media thickness (IMT, vascular damage) and creatinine clearance (CC, renal damage). 24-hour hemodynamics and stiffness were estimated through the validated VASOTENS technology, based on transfer function analysis of brachial oscillograms. 24-hour brachial (bSBP) and aortic systolic BP (aSBP), standard deviation of bSBP, PWV and AIx were obtained. Relation of vascular indices with LVMI, IMT and CC was evaluated by bivariate and multivariate analysis (stepwise linear regression analysis).

Results: In the bivariate analysis a statistically significant relation was found for age, bSBP and aSBP vs. LVMI and IMT (see table, correlation coefficients or r). IMT was also significantly related to SBP variability and arterial stiffness, whereas increasing age, SBP variability and AIx were significantly associated with a decline of renal function.

In the multivariate analysis, including all variables entered in the bivariate model, adjusted by sex, statistically significant ($p < 0.001$) association was observed for aSBP and age with LVMI (standardized regression coefficient 0.25 and 0.18, respectively), and for age with IMT (0.56) and CC (−-0.53).

Correlation coefficients	LVMI (g/m^2)	IMT (mm)	CC (ml/min)
Age (years)	0.25 ***	0.56 **	-0.53 **
bSBP (mmHg)	0.23 ***	0.24 **	-0.01
aSBP (mmHg)	0.28 ***	0.26 **	-0.05
SD bSBP (mmHg)	0.01	0.24 **	-0.19 *
PWV (m/s)	0.09	0.17 *	-0.14
AI (%)	0.07	0.22 **	-0.18 *

*** p<0.001; ** p<0.01; * p<0.05

Conclusions: In hypertensive patients age appears to be the major determinant of organ damage, with central SBP, and marginally peripheral SBP, PWV and AIx, also playing a significant role. Our results suggest that estimation of 24-hour central hemodynamics and arterial stiffness in ambulatory conditions may help improve the individualized assessment of the BP-associated organ damage of hypertension.