

**1D.03 OFFICE, HOME, AND AMBULATORY BLOOD PRESSURE AS PREDICTORS OF CARDIOVASCULAR RISK**

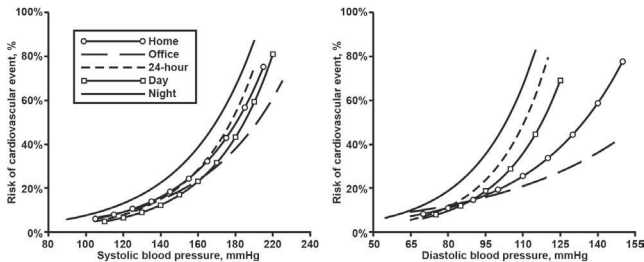
T. Niiranen, J. Mäki, P. Puukka, H. Karanko, A. Jula. *National Institute for Health and Welfare, Department of Chronic Disease Prevention, Turku, FINLAND*

**Objective:** Previous studies have shown that home and ambulatory blood pressure (BP) are prognostically superior to office BP. Ambulatory BP is widely considered to be the golden standard of BP measurement although it has not been shown to be more strongly associated with cardiovascular risk than home BP. Our objective was to compare the prognostic value of office, home, and ambulatory BP.

**Design and method:** Office, home, and 24-hour ambulatory BPs were measured along with other cardiovascular risk factors in 464 participants in 1992-1996. The primary end point was incidence of a composite cardiovascular event (cardiovascular mortality, nonfatal myocardial infarction, nonfatal stroke, hospitalization for heart failure, percutaneous coronary intervention, or coronary artery bypass graft surgery). We assessed the independent prognostic value of each BP variable with Cox proportional hazard models adjusted for other cardiovascular risk factors. The likelihood chi-square ratio value was used as a measure of the improvement of goodness of fit between models containing one, two, or three BP variables.

**Results:** The follow-up ended on December 31, 2011. After a mean follow-up of 16.1±3.9 years, 70 participants (13.9%) had experienced at least one cardiovascular event. Office (systolic/diastolic hazard ratio [HR] per 1/1 mm Hg increase in BP, 1.024/1.018; systolic/diastolic 95% confidence interval [CI], 1.009-1.040/0.994-1.043), home (HR, 1.029/1.028; 95% CI, 1.013-1.045/1.005-1.052), and 24-hour ambulatory BP (HR, 1.033/1.049; 95% CI, 1.019-1.047/1.023-1.077) were predictive of cardiovascular events. The risk of cardiovascular events increased more steeply from office to home and ambulatory BP (Figure). When all three BP variables were included in the model simultaneously, only systolic/diastolic ambulatory BP was a significant predictor of cardiovascular events (P=0.002/<0.001) whereas office (P=0.60/0.08) and home (P=0.64/0.70) BP were not. Home systolic/diastolic BP improved the goodness of fit of the model only slightly when added to a model including office BP (P=0.09/0.047). Systolic/diastolic ambulatory BP improved the fit of the model more clearly when added to a model including both office and home BP (P=0.001/<0.001).

**Conclusions:** Our findings suggest that ambulatory BP is prognostically superior to office and home BP.



**1D.04 TELEMONITORING OF 24-H BLOOD PRESSURE IN LOCAL PHARMACIES AND BLOOD PRESSURE CONTROL IN THE COMMUNITY: RESULTS FROM THE TEMPLAR PROJECT**

S. Omboni, M. Caserini. *Italian Institute of Telemedicine, Clinical Research Unit, Varese, ITALY, on behalf of the TEMPLAR Project Group*

**Objective:** The recent availability in several Italian Pharmacies of ambulatory blood pressure monitoring (ABPM) facilities, with telemedical reporting, has ensured ready access to this important diagnostic technique by patients suspected of having hypertension. It also provided the referring physicians with a remarkable and timely tool for screening and management of arterial hypertension. The aim of the TEMPLAR Project was to analyze the data collected in such a real-life context, in order to evaluate the level of BP control in the community.

**Design and method:** ABPMs were performed by an electronic, clinically validated, BP monitor (Microlife WatchBP 03) at the local Pharmacy. At the end of the 24-h each recording was downloaded on-site on a PC and sent through a web-based telemedicine platform to a Central Core Laboratory for medical

evaluation and reporting. In each subject an automatic office BP measurement was obtained before starting the ABPM and information about drug treatment recorded.

**Results:** Recordings obtained in 5645 subjects (mean age 57±15 years; 53% females; 90% untreated) referred to 365 local Pharmacies were analyzed. 24-h BP control (<130/80 mmHg) was poor, with 50% of subjects at target (51% untreated vs. 47% treated; p=0.139). Nocturnal hypertension (night-time BP ≥120/70 mmHg) was more common (p<0.001) than diurnal hypertension (day-time BP ≥135/85 mmHg): 52% vs. 46%. Additionally, 16% of subjects displayed elevated average BP values exclusively at night and 10% at day (p<0.001). The most common BP phenotype was sustained hypertension (42%), followed by sustained normotension (31%), isolated clinic hypertension (19%) and masked hypertension (9%).

**Conclusions:** Our preliminary results suggest that a telemedicine service providing medical reporting of ABPM tests carried out in Pharmacies may facilitate high BP screening and detection. It may also help to describe the complex 24-h BP features and guide physician's intervention. Further studies are needed to explore the potential public health benefits of such an approach.

**The TEMPLAR Project Group**

Promoter and Scientific Coordinator:

Stefano Omboni (Varese)

Scientific Committee of the Working Group on Blood Pressure Monitoring of the Italian Society of Hypertension (SIIA):

Gianfranco Parati (Milano), Paolo Palatini (Padova), Elisabetta Benetti (Padova), Renzo Carretta (Trieste), Francesco Cocco (Manduria, Taranto), Ferdinando D'Amico (Messina), Antonio Del Giudice (San Giovanni Rotondo, Foggia), Alessandra de Tschudy (Roma), Antonio Ferrara (Castrovillari, Cosenza), Guido Garavelli (Cremona), Claudio Guadagni (Ravenna), Guglielmo Mazzocca (Abano Terme, Padova), Stefano Omboni (Varese), Claudio Pini (Como), Maria Pia Rodighiero (S. Bortolo, Vicenza), Francesca Saladini (Padova), Alvaro Vaccarella (Lecco), Antonella Velardi (Roma), Maddalena Veronesi (Bologna)

Scientific Committee of the Italian Society of General Practitioners (SIMG):

Antonino Di Guardo (Catania), Gaetano Profeta (Catania), Alessandro Filippi (Bergamo)

**1D.05 ATRIAL FIBRILLATION DETECTION USING OSCILLOMETRIC 24-HOUR AMBULATORY BLOOD PRESSURE MONITORING VERSUS 24-HOUR HOLTER ELECTROCARDIOGRAPHY**

A. Kollias<sup>1</sup>, P. Kalogeropoulos<sup>2</sup>, A. Ntineri<sup>1</sup>, K. Dimitriadis<sup>3</sup>, M. Zeniodi<sup>1</sup>, G.S. Stergiou<sup>1</sup>. <sup>1</sup> Hypertension Center, STRIDE Hellas-7, Third University Department of Medicine, Sotiria Hospital, Athens, GREECE, <sup>2</sup> Cardiology Department, Agioi Anargiroi General Hospital, Athens, GREECE, <sup>3</sup> First University Department of Cardiology, Hippokraton Hospital, Athens, GREECE

**Objective:** A non-invasive oscillometric 24-hour ambulatory blood pressure (BP) monitor (ABPM) with implemented algorithm for automated atrial fibrillation (AF) detection has been developed. This study validated the diagnostic accuracy of this monitor (Microlife WatchBP O3) versus 24-hour Holter electrocardiography (ECG).

**Design and method:** Forty-six subjects (mean age 70.8±9 years; 22 men) were subjected to simultaneous 24-hour ABPM and Holter ECG. False negative BP measurements in permanent AF subjects and false positive in nonAF were evaluated.

**Results:** According to medical history and 24-h ECG recordings, the participants were classified as permanent AF (n=9), paroxysmal AF (n=1) and nonAF (n=36). The number of valid BP readings and those indicating AF in the participants' groups with AF and nonAF are shown in table. In the subject with paroxysmal AF (Holter) the proportion of ABPM readings detecting AF was 29%. Seven nonAF (Holter) subjects had >15% of readings with false positive AF (mean 33±17%). One of them had constant Mobitz I atrioventricular block, whereas in the others the main arrhythmia was frequent supraventricular premature beats (6% of total beats; in 2 subjects in triplets). In the nonAF subjects there was a significant association between the percentage of false positive AF readings and that of supraventricular premature beats (r=0.59, p<0.01).

Ambulatory BP readings	Permanent AF (n=9)	NonAF (n=36)
Total	71±2.7	70.4±2.2
Valid	64.5±4.8 (91%)	65.7±5.2 (93%)
False negative AF	5.1±2.5 (8%)	
False positive AF		7.3±8.2 (14%)