Objective: Ambulatory blood pressure monitoring (ABPM) is recommended by current European guidelines for the early diagnosis of hypertension and to monitor the efficacy of antihypertensive treatments. The Hungarian Society of Hypertension has initiated a 5-year, nationwide program in 2021 to promote the routine use of ABPM and to improve the motivation of doctors and patients. This is an updated report on the Hungarian ABPM Registry.

Design and method: This is an ongoing, multicenter, open-label, observational study. Adult (age >18 years) patients with known hypertension(HT), or with suspected/newly diagnosed hypertension(nHT) can be involved in the study. ABPM monitoring is performed by GPs, internists, and cardiologists using validated Meditech ABPM-06 monitors. Current report analyzed ABPM data between 21.02.2021-16.11.2023, that were collected into an electronic case report. Overall, 40621 ABPMs were performed, due to protocol deviation 1901 patients were excluded from the analysis.

Results: 26315 patients were HTs(68.3%), 12193 patients were nHTs(31.5%). In the HT group 95.5%, in the nHT group 21.5% were treated. 63.6% of all patients were hypertensives according to the 24-hour average blood pressure(BP) values. Mean 24-hour systolic and diastolic BP was 133.84±14.5 mmHg and 79.2±10.3 mmHg, respectively. There was no difference in the 24-hour mean systolic BP between HT and nHT patients (133.75±13.96mmHg vs. 133.86±14.72mmHg, respectively, p=NS). Obesity(BMI >30 kg/m2) increased the risk of hypertension(OR=1.82[1.73;1.92]for 24-hour average). Coffee consumption(more than 3/day)(OR=1.22[1.16;1.29]for 24-hour average), snoring(OR=1.39[1.33;1.46]for 24-hour average)and smoking(OR=1.10[1.03;1.18]for 24-hour average)all increased the risk of hypertension, primarily affecting more the daytime BP values(OR=1.24[1.18;1.31]for daytime in coffee consumption, OR=1.13[1.07;1.19]for nighttime in coffee consumption; OR=1.42[1.36;1.49]for daytime in snoring, OR=1.31[1.25;1.38]for nighttime in snoring; OR=1.09[1.01;1.16]for daytime in smoking, OR=1.01[0.94;1.08]for nighttime in smoking (NS)). Lack of regular sport(less than 3x30 minutes weekly) increased the risk of hypertension(OR=1.11[1.05;1.18]for 24-hour average), primarily affecting more the nighttime values(OR=1.19[1.12;1.26]for nighttime, OR= 1.02[0.96;1.07]for daytime(NS)).

Conclusions: Hypertension is highly prevalent in both HT and nHT patients, irrespectively of gender or treatment. Obesity, lack of regular sport, coffee consumption, snoring and smoking are all significant risk factors in developing hypertension, latter ones affecting more the daytime BP values, whereas lack of regular sport affects more the nighttime BP values.

SURVEY INDICATES GREATER PATIENT PREFERENCE FOR AKTIIA'S CUFFLESS MONITOR OVER TRADITIONAL AMBULATORY BLOOD PRESSURE MONITOR IN A CARDIAC REHABILITATION PROGRAM

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Objective: Cuffless blood pressure (BP) monitors have the potential to improve hypertension management and facilitate remote BP monitoring. The success and long-term adoption of these devices will significantly depend on patient preferences and their perceptions of using such technology. In the present work, we report patients' preferences regarding a continuous cuffless BP monitor and cuff-based ambulatory BP monitoring (ABPM) during a 12-week cardiac rehabilitation (CR) program.

Design and method: 63 subjects (NCT04548986, mean age 53.1±7.2 years, 21.2% female, arm circumference 29.0±2.5 cm) were enrolled in a 12-week CR program at RHNE – Réseau Hospitalier Neuchâtelois, Switzerland. Subjects wore a cuffless BP monitor (Aktiia SA, Switzerland) during the entire CR program, and conducted 24-h ABPM (Dyasis 3, Novacor, France) during the first and last days of CR. The analysis was conducted on experience surveys completed by subjects who successfully finished the CR program.

Results: 57 subjects completed the CR program and filled the survey at the end of the program (Figure 1). From an open question for 3 adjectives regarding experience with the Aktiia monitor, the most cited terms were "discreet" (53% of the subjects), "light" (47%) and "comfortable" (28%), with more than 15% of the subjects describing it as "practical" and "pleasant". For ABPM, the most cited terms were "bulky" (41%), "noisy" (26%) and "uncomfortable" (17%), with approximately 10% of subjects describing it as "embarrassing", "unpleasant" and "heavy". Nearly all subjects felt no discomfort when using the Aktiia monitor, and almost 90% of the subjects would repeat night measurements with Aktiia. Subjects were equally confident in the precision for both devices, and few subjects reported any disruption in their daily activities due to wearing Aktiia's bracelet.

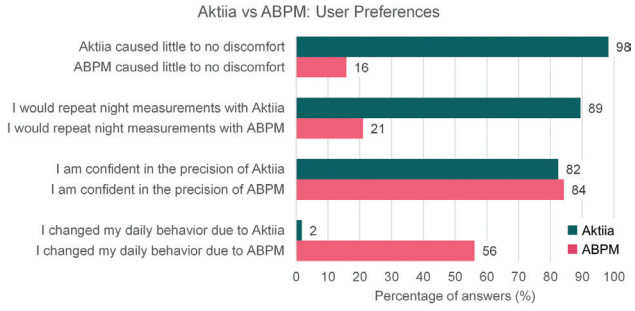

Figure 1. Subjects' preferences (57 out of 63 enrolled) between the Aktiia monitor and traditional 24-h ABPM. Subjects had to choose answers from 0 to 10. The answers were organised as 0-4 and 6-10 groups, and the percentages of answers were calculated from the resulting groups.

Conclusions: Among patients who used both the Akiia bracelet and ABPM and during the 12-weeks CR program, the vast majority found the cuffless monitor more convenient, more comfortable and with a similar perception of performance compared to ABPM. The results suggest that cuffless BP devices may facilitate continual 24-h BP monitoring compared to an ABPM setup and enhance patients' adherence to BP monitoring.

TRACKING NOCTURNAL BLOOD PRESSURE DIPPING WITH THE AKTIIA CUFFLESS MONITOR

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Objective: Previous studies have highlighted the prognostic importance of nighttime blood pressure (BP) dipping, associating non-dipping BP patterns with cardiovascular risk. Standard 24-h ambulatory BP monitors (ABPM) often show inconsistent reproducibility in nocturnal dipping. Cuffless BP monitors present a promising approach for continual measurement of night-time BP, yet their effectiveness is to be assessed. This study compares nocturnal BP dipping as recorded by a cuffless BP monitor with readings from a conventional 24-h ABPM.

Design and method: 63 subjects (NCT04548986, mean age 53.1±7.2 years, 21.2% female, arm circumference 29.0±2.5 cm) were enrolled in a 12-week cardiac rehabilitation program at RHNE – Réseau Hospitalier Neuchâtelois, Switzerland. Systolic BP (SBP) night-time dipping was assessed by comparing same-day daytime (9am–9pm) and night-time (11pm–7am) averages using both cuffless BP monitor (Aktiia SA, Switzerland) and ABPM (Dyasis 3, Novacor, France). Two sessions were analyzed: session 1 compared first day's ABPM and Aktiia data; session 2 compared final day's readings from both devices. Only sessions with >=20 daytime and >=7 night-time measurements for ABPM, and >=12 daytime and >=8 night-time measurements for Aktiia were considered for analysis. The performance of night dipping identification was evaluated as the area under the curve (AUC) of a Receiver Operating Characteristic (ROC) curve (reference: -10% ABPM night-dip), and as the concordance rate (CR, accuracy) of a Four-Quadrant Plot (FQP, ±6% exclusion zone around -10% ABPM night dips).

Results: 30 subjects fulfilled the data availability requirements per BP modality (26 in session 1, 12 in session 2). Figure 1A illustrates the ROC curve (AUC=0.72). The optimal operating point for Aktiia's night-time dip was found at -2.96% (red dot, 91% sensitivity, 63% specificity). Figure 1B shows the FQP comparing night-dips recorded by ABPM and Aktiia (78.9% CR, 83.3% precision).