P20: BRACHIAL AND RADIAL SYSTOLIC BLOOD PRESSURE ARE NOT THE SAME: POTENTIAL IMPLICATIONS FOR VALIDATION PROTOCOLS INCLUDING BRACHIAL CUFF DEVICES AND WRIST-BASED WEARABLES

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References

P18
AORTIC STIFFNESS IN AORTIC STENOSIS: SHORT TERM HEMODYNAMIC
CHANGES AFTER TRANSCATHERETER AORTIC VALVE IMPLANTATION

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Background: Both aortic valve stenosis as aortic stiffness are moderators of
arterio-ventricular coupling and independent predictors of cardiovascular
morbidity and mortality. Studies on the effect of Transcatheter Aortic Valve
Implantation (TAVI) on hemodynamic parameters are limited. We performed
a pilot study to investigate possible short-term hemodynamic changes after
TAVI in older patients.

Methods: TAVI Care & Cure is an observational ongoing study including
consecutive patients undergoing TAVI procedure. Central and peripheral he-
modynamic measurements were measured non-invasively 1 day before (T0)
and 1 day after (T1) TAVI using a validated oscillometric method using a
brachial cuff (Mobil-O-Graph).

Results: 40 patients were included. Mean aortic valve area at baseline was
0.73 ± 0.18 cm². As expected indices of severity of the aortic valve stenosis
improved. Systolic blood pressure (SBP) dropped by 8.5%, from 130.3 ± 22.9 mmHg to 119.5 ± 15.8 mmHg (p = 0.005). Diastolic blood pressure (DBP) dropped by 13.1% from 74.8 ± 14.5 mmHg to 65.0 ± 11.3 mmHg (p < 0.001).
The aPulse Wave Velocity (aPWV) decreased from 12.05 ± 1.99 m/s to 11.6 ± 1.56 m/s (p = 0.006)(Fig. 1). Patients with high
aPWV at baseline showed a significantly larger reduction in SBP in comparison
to patients with low aPWV: - 20.3 mmHg (-14,1%) vs - 3.1 mmHg (-2,6%),
respectively (p = 0.033). The same trend was found for the DBP: -16.2
(-20,4%) vs. -9.5 mmHg (-6,3%) for high vs. low aPWV at baseline (p = 0,037).

Conclusion: We found short term changes of blood pressure and aortic stiff-
ness after TAVI. The amplitude of the changes was the largest in patients
with elevated aortic stiffness at baseline.

Figure 1: Changes of hemodynamic parameters after TAVI: Systolic Blood Pressure (a), Diastolic Blood Pressure (b) and aPulse Wave Velocity (c).

Changes in Percentages
-8.5% a
-13.2% b
-4% c

P19
EFFECT OF GROWTH HORMONE REPLACEMENT IN THE VASCULAR
SYSTEM OF ADULT PATIENTS WITH CHILDHOOD ONSET
HYPOPTUITARISM

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Objective: To evaluate the human recombinant growth hormone replace-
ment (hrGHr) in the metabolic parameters and vascular system in adult pa-
tients with childhood onset hypopituitarism (COH).

Patients and methods: Fifty-one adult with COH were selected for
the study. They were divided into 2 groups: 1 - hrGHr: 13 male, 14 female with
median age 33.2 yrs, rhGHr in adult life with 7.38 yrs median time; 2 -
Without hrGHr: 13 male, 11 female with 36.9 yrs median age and without
hrGHr in adult life of 10.4 yrs median time. Anthropometric parameters,
dual-energy X-ray absorptiometry (DEXA), lipid and glycemic profile, and
structural and functional parameters of the arterial vessels (carotid intima
media thickness, arterial stiffness and flow mediated dilation) were eval-
uated.

Results: The diagnosis of obesity and overweight was higher in patients
without hrGHr. Among the anthropometric characteristics, the waist-to-
height ratio and diastolic blood pressure were higher in patients with
replacement (p = 0.03 and p = 0.019, respectively). In the evaluation of
body composition through DEXA, the Fat Mass Index among patients under
hrGHr was significantly lower than in patients without hrGHr (p = 0.029).
Although no statistical difference in the vascular parameters between pa-
tients with and without hrGHr, it was observed a trend towards a higher arte-
rstial stiffness in the group without replacement (p = 0.051). In the group of
patients without hrGHr, arterial stiffness had a significant and positive cor-
relation with the time without hrGHr (p = 0.038).

Conclusions: These data suggest that the hrGHr in adults with COH may have
protective effects on cardiovascular system.

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P20
BRACHIAL AND RADIAL SYSTOLIC BLOOD PRESSURE ARE NOT THE SAME:
POTENTIAL IMPLICATIONS FOR VALIDATION PROTOCOLS INCLUDING
BRACHIAL CUFF DEVICES AND WRIST-BASED WEARABLES

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Introduction: Radial intra-arterial blood pressure (BP) is sometimes used as
the reference standard for validation of brachial cuff BP devices, and there
is an emerging ‘wearables’ market seeking to measure BP at the wrist. How-
ever, brachial systolic BP may not be a good representation of the radial sys-

tolic BP, and this could have implications for appropriate BP validation
protocols. This study sought to determine the difference between brachial
and radial systolic BP.

Methods: Intra-arterial BP was measured consecutively at the brachial and
radial arteries in 168 participants undergoing coronary angiography (aged
62 ± 10 years, 69% male). Intra-arterial BP recordings were made via fluid
filled catheter according to guideline recommendations.

Results: Brachial systolic BP was lower than radial systolic BP (136.5 vs
143.9 mmHg; p < 0.001). Only 40% of participants had a brachial systolic BP
within ±5 mmHg to radial systolic BP (138.1 and 138.5 mmHg, p = 0.15).
Additionally, 25% and 17% of participants had systolic BP differences of
5 to 10 mmHg (132.7 and 139.9 mmHg respectively, p < 0.001) and 10 to
15 mmHg (132.2 and 144.4 mmHg respectively; p < 0.001). A further 18% had
systolic BP differences >15 mmHg (140.3 and 161.3 mmHg; p < 0.001).

Conclusion: Radial systolic BP is not representative of brachial systolic BP,
with the majority of participants having a systolic BP difference greater
than 5 mmHg between brachial and radial arteries. Therefore, if validation
testing of BP devices is performed with intra-arterial BP as the reference
standard, this should be undertaken at the same site as the brachial cuff
or wrist based wearable device.

P21
CHARACTERIZATION OF AN ATHEROSCLEROTIC PHENOTYPE

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Background: Interaction between genetics and epigenetics has been largely
described in Atherosclerotic Disease and the relations varies widely accord-
ing to the population, clinical characteristics and the study type.

Objective: Compare genetic and epigenetic factors in two middle age pop-
ulations with and without plaques.

Methods: A retrospective cohort study from a database of 6381 p. first ever
Non Invasive Vascular Evaluations (NIVE) (IMT, plaques, PWV and Endothelial
Function (EF)). We analyzed 1876 p. 40–45 y.o. (29.4%) and particularly 179
(2, 8%) without CV Drugs, 80 w/o (P-) and 99 with C-F plaques (P+).

Abstracts