Noninvasive screening for central venous pressure to define the hemodynamic profile of patients without heart failure signs or symptoms

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INTRODUCTION. Physical examination to detect signs of heart failure (HF) or invasive hemodynamic assessment combined with blood pressure (BP) can identify four hemodynamic profiles of patients. Profile I (Warm&Dry): no hypoperfusion or congestion; profile II (Warm&Wet): no hypoperfusion with congestion; profile III (Cold&Dry): hypoperfusion without congestion; profile IV (Cold&Wet): both hypoperfusion and congestion.
A novel **noninvasive** venous congestion meter (**VenCoM**) is now available for estimating **central venous pressure (CVP)** and can be suitable to increase knowledge in cardiovascular epidemiology.

PURPOSE. To present the hemodynamic profile of patients without signs or symptoms of HF within a screening programme for central venous pressure.

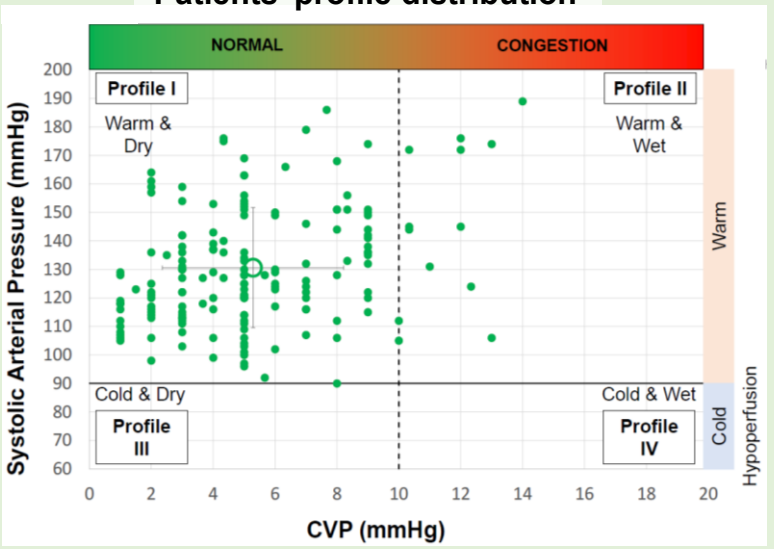
METHODS. The VenCoM device works like a standard sphygmomanometer for BP assessment, but with 2 pneumatic cuffs: one positioned on the upper arm for occluding venous flow, and one positioned on the forearm for monitoring volume changes in the forearm, as a consequence of the occlusion. Patients referred for general medical follow-up, but without HF signs or symptoms and without renal impairment, were enrolled in a CVP screening programme.
We defined systolic BP=90 mmHg as the threshold between the Cold and Warm zones. We defined the threshold for congestion when CVP>10 mmHg as estimated by VenCoM.

RESULTS. Currently, **169 patients** (84 females, 85 males) have been enrolled:

- mean age=52±20 years;
- mean BMI=25±4;
- mean BP Systolic=132±21,
- Diastolic=80±11mmHg;
- mean Heart Rate=72±14 bpm.

A total of **11(7%) patients** resulted **out of the Profile I area**. All of them will be addressed for a specific follow-up and monitoring plan

Patients' profile distribution



CONCLUSIONS. Data collected through the noninvasive **VenCoM system combined with standard BP measurements** can easily define the **hemodynamic profile of patients**. This approach might help identifying those at higher risk of developing HF or multiorgan disease.