

## Utility of anthropometric and lipid indicators to classify people with hypertension or pre-hypertension

Susana Rivera Mancía<sup>1</sup>, Eloísa Colín-Ramírez<sup>1</sup>, Maite Vallejo<sup>2</sup>, Raúl Cartas-Rosado<sup>1</sup>, Óscar Infante-Vázquez<sup>2</sup>, Jesús Vargas Barrón<sup>2</sup>

<sup>1</sup>CONACYT-National Institute of Cardiology Ignacio Chávez, Tlalpan, Mexico, <sup>2</sup>National Institute of Cardiology Ignacio Chávez, Tlalpan, Mexico

**Introduction:** Both hypertension and prehypertension have been linked to increased cardiovascular disease (CVD) mortality; fat accumulated and/or circulating in the body may also participate in this relationship and can be estimated through anthropometric and lipid indicators. This work is aimed to compare the ability of these indicators to distinguish among normotensive, prehypertensive and hypertensive persons.

**Methods:** Free-living volunteers (n=1,445) from Mexico City, aged 20-50 were included. After averaging three blood pressure measurements, participants were classified as normotensive, prehypertensive or hypertensive. Indicators were grouped by the elements needed for their calculation: (1) including only circulating fat (IOCF) (e.g. atherogenic index of plasma [AIP]), (2) including only accumulated fat (IOAF) (e.g. waist circumference [WC]) and (3) mixed (e.g. lipid accumulation product). All the indicators were compared by ROC (receiving operating characteristic) analysis.

**Results:** IOAF had greater areas under the ROC curve (area under the excretion rate time curve [AURC]) than the others, being the WC the highest (AURC=0.837 for discriminating normotensive from hypertensive men); IOCF had the poorest performance (AURC ranging from 0.414 to 0.668). While all the IOAF significantly discriminated among the three blood pressure groups in men, none of them discriminated prehypertensive from hypertensive women. Cut-off points for WC to identify the presence of prehypertension were: 87.5 cm for men (sensitivity=0.811, specificity=0.407) and 83.5 cm for women (sensitivity=0.836, specificity=0.339).

**Conclusions:** Accumulated fat could be a better predictor of high blood pressure than that circulating, as shown by the best performance of IOAF, particularly WC. Measurement of WC should be part of routine clinical evaluations to screen for people at risk of hypertension.

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