

eISSN 2448-9514
ISSN 0379-802X

Volume 51

Number 1

2020

JCCP

JOURNAL OF THE CEYLON COLLEGE OF PHYSICIANS

Abstracts

of the

CCP Annual Conference 2020

on 19th, 20th and 21st November

Colombo

VALIDATION OF THE WORLD HEALTH ORGANIZATION/ INTERNATIONAL SOCIETY OF HYPERTENSION (WHO/ISH) CARDIOVASCULAR RISK PREDICTIONS IN SRI LANKANS BASED ON FINDINGS FROM A PROSPECTIVE COHORT STUDY

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Introduction and objectives: There are no cardiovascular(CV)-risk prediction models specifically for Sri Lankans. Different risk prediction models not validated among Sri Lankans are being used to predict CV-risk of Sri Lankans. We validated the WHO/ISH (SEAR-B) risk prediction charts prospectively in a population-based cohort of Sri Lankans.

Method: We selected participants between 40-64 years, by stratified random sampling of the Ragama Medical Officer of Health area in 2007 and followed them up for 10-years. Risk predictions for 10-years were calculated using WHO/ISH (SEAR-B) charts with- and without-cholesterol in 2007. We identified all new-onset cardiovascular events(CVE) from 2007-2017 by interviewing participants and perusing medical-records/death-certificates in 2017. We validated the risk predictions against observed CVEs.

Results: Baseline cohort consisted of 2517 participants (males 1132 (45%), mean age 53.7 (SD: 6.7 years). We observed 215 (8.6%) CVEs over 10-years. WHO/ISH (SEAR B) charts with- and without-cholesterol predicted 9.3% (235/2517) and 4.2% (106/2517) to be of high CV-risk ($\geq 20\%$), respectively. Risk predictions of both WHO/ISH (SEAR B) charts with- and without-cholesterol were in agreement in 2033/2517 (80.3%). Risk predictions of WHO/ISH (SEAR B) charts with and without-cholesterol were in agreement with observed CVE percentages among all except in high-risk females predicted by WHO/ISH(SEAR B) chart with-cholesterol (observed risk 15.3% (95% CI 12.5 - 18.2%) and predicted risk $\geq 20\%$).

Conclusions: WHO/ISH (SEAR B) risk charts provide good 10-year CV-risk predictions for Sri Lankans. The predictions of the two charts, with and without-cholesterol, appear to be in agreement but the chart with-cholesterol seems to be more predictive than the chart without-cholesterol. Risk charts are more predictive in males than in females. The predictive accuracy was best when stratified into two categories; low ($< 20\%$) and high ($\geq 20\%$) risk.