Conclusion: This study reveals nearly 30% of the population are under exposure with multiple risk factors with rising risk gradient from rural to urban regions, presence of occult and overt altered vascular biology indicating influence of environmental factors. The data emphasizes the need for such studies in different regions across the country to evolve strategic plan at population level for early identification and intervention to thwart untimely vascular death.

Gender disparities in cardiovascular care access and delivery in India: Insights from the American College of Cardiology’s PINNACLE India Quality Improvement Program (PIQIP)

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Background: Limited data are available to assess whether access to and quality of cardiovascular disease (CVD) care are comparable among men and women in India. We analyzed data from the American College of Cardiology’s PINNACLE (Practice Innovation and Clinical Excellence) India Quality Improvement Program (PIQIP) to evaluate gender disparities in CVD care delivery.

Methods and results: Between 2011 and 2015, we collected data on performance measures for patients with coronary artery disease (CAD) (n = 14,010), heart failure (HF) (n = 11,965) and atrial fibrillation (AF) (n = 496) in PIQIP, among 17 participating practices. The total number of women was 5,303 (20.0% of the cohort). The number of patient encounters were significantly low for women compared to men (2.59 vs. 2.82, p < 0.001). Women were significantly younger (48.9 years vs. 51.5 years, p < 0.001), but had a higher co-morbidity burden compared to men – hypertension (62.0% vs. 45.6%, p < 0.001), diabetes (39.4% vs. 35%, p < 0.001), and hyperlipidemia (3.7% vs. 3.1%, p = 0.19). On the contrary, the medication prescription rates were strikingly lower in women with CAD compared to men – aspirin (38% vs. 50.4%, p < 0.001), aspirin or thienopyridine combination (46.9% vs. 57.2%, p < 0.001), and beta-blockers (36.8% vs. 47.8%, p < 0.001). Similarly, among women with ejection fraction <40%, the use of guideline-directed medical therapy was significantly lower compared to men for beta-blockers (30.8% vs. 37.0%, p < 0.001), angiotensin-converting enzyme inhibitors (ACE-i) or angiotensin receptor blockers (ARBs) (29.3% vs. 34.9%, p < 0.001), and beta-blockers/ACE-i or ARBs (24.6% vs. 31.0%, p < 0.001). Among patients with AH and CHADS2 score ≥2, more women were on oral anticoagulation (19.6% vs. 14.6%, p = 0.34), although this was not significantly different between men and women, and the overall number of patients with AH was low.

Conclusions: Although documentation of guideline-directed medical therapy was low for both genders, significant gender disparities exist in CVD care access and delivery in India, with a strikingly low percentage of women receiving guideline-directed CVD medical therapy compared to men, despite a significantly higher co-morbidity burden. These findings should provide impetus to identify potential causes for, and seek solutions to narrow these disparities.

Large increase in prevalence of CAD among women over 2 decades

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Background: With the increase of cardiovascular risk factors in India the prevalence of coronary heart disease is also expected to rise. A cross sectional study in 2010–2012 assessed the prevalence of coronary heart disease in Kaniyambadi, a rural block and urban Vellore, Tamil Nadu and compared the current prevalence with the prevalence of coronary heart disease in the same areas in 1991–1994.

Two cross sectional surveys were carried out to determine the prevalence of coronary heart disease in a rural block in Vellore district and in Vellore town in 1991–1994 and 2010–2012. The numbers of participants were 7342 in 1991–1994 and 4845 in 2010–2012, aged 30–60 years. Coronary heart disease was defined as previously diagnosed, symptoms detected using Rose angina questionnaire or ischemic changes on electrocardiography (ST, T and Q wave changes, read by trained cardiologists).

The age adjusted prevalence in rural women nearly tripled and urban women doubled, with only a slight increase among males, between 1991–1994 and 2010–2012 in both urban and rural Vellore, south India.

The large increase in prevalence rates of coronary heart disease among women, suggests the need for further confirmatory studies and interventions for prevention, especially targeting women who are generally considered to be at a lower risk for coronary heart disease.

CHA2DS2-VASc-HSF score – New predictor of severity of coronary artery disease in 2172 patients

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Introduction: Coronary artery disease (CAD) is the leading cause of morbidity and mortality in the present world. Risk factor assessment, prevention and treatment of CAD is an important aspect of present day research. CHADS2 and CHA2DS2-VASc scores have been previously used for assessing prognostic risk of thromboembolism in non valvular atrial fibrillation patients. They include similar risk factors for the development of CAD and may provide crucial information regarding the severity of coronary artery lesions. To increase the likelihood of determining CAD severity, the CHA2DS2-VASc-HS and CHA2DS2-VASc-HSF score comprising...
of hyperlipidemia, smoking and family history respectively in addition to the components of the CHA2DS2-VASc score and male instead of female gender. The aim was to investigate whether these risk scores can be used to predict CAD severity.

Methods and results: A total of 2976 consecutive patients who underwent coronary angiography were enrolled in the study. Presence of >50% stenosis in a coronary artery was assessed as significant CAD. Of the patients, 804 had normal coronary angiograms and served as group 1. The remaining 2172 patients with coronary stenosis were further classified into 2 groups according to CAD with stenosis of <50% or >50%. 834 patients with mild CAD as group 2 and 1338 patients with severe CAD as group 3. The CHADS2, CHA2DS2-VASc, CHA2DS2-VASc-HS and CHA2DS2-VASc-HSF scores were significantly different among the 3 groups. All the four scores correlated significantly with the number of diseased and the Gensini score.

The CHA2DS2-VASc-HS and CHA2DS2-VASc-HSF score was found to be the best scoring scheme to predict CAD severity in the area under the curve comparison of these scoring systems.

Conclusion: This is the first population based research study on vascular biology in South Indian. The study indicates the arterial stiffness progressively increase with advancing age in healthy subjects as opposed to Caucasian and western population. The change in the trend of vascular stiffness occurs in >40 years, 10 years earlier.

Vascular aging in healthy population of both sexes in 3 strata of South Indian population

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Background: The arterial stiffness (AS) is an index of vascular health and has been shown to cause independent predictive value for adverse cardio vascular outcome in the general population. The aim of this work is to establish normal values in both sexes in different age groups of healthy population as a part of epidemiology study – PURSE HIS.

Materials and methods: Study design: Multistage stratified randomised cluster sampling. Study setting: Urban (Chennai), semi-urban and rural areas from Thiruvallur and Kanchipuram districts of Tamil Nadu. Sample size: 741study participants of both gender with age 20–60 years.

Methods: Arterial pressure wave forms were obtained from radial artery, right common carotid artery and right femoral artery by application tonometer using SphygmoCor MM3®. PWV, AAlx, ASP, APP and AAP were registered as determinants of vascular stiffness. The present analysis is a descriptive observational cross sectional study of the healthy subjects (without any of the atherogenic risk factors) during the period 2007–2012.

Results: Among the recruited 741 healthy subjects, 152 males and 589 females. The results were analyzed chronologically in 10 year age interval and ANOVA test (for statistical significance) between the age groups is depicted in the table below.

<table>
<thead>
<tr>
<th>Variable</th>
<th>Male</th>
<th>Female</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>[n = 32]</td>
<td>[n = 47]</td>
</tr>
<tr>
<td>ASP</td>
<td>104.4 ± 9.41</td>
<td>108.78 ± 10.20</td>
</tr>
<tr>
<td>AAP</td>
<td>4.38 ± 4.61</td>
<td>7.04 ± 5.20</td>
</tr>
<tr>
<td>APP</td>
<td>31.34 ± 7.40</td>
<td>34.48 ± 8.34</td>
</tr>
<tr>
<td>AAlx</td>
<td>10.06 ± 11.36</td>
<td>15.52 ± 8.84</td>
</tr>
<tr>
<td>aPWV</td>
<td>6.63 ± 10.3</td>
<td>7.42 ± 1.61</td>
</tr>
</tbody>
</table>

Conclusion: This is the first population based research study on vascular biology in South Indian. The study indicates the arterial stiffness progressively increase with advancing age in healthy subjects as opposed to Caucasian and western population. The change in the trend of vascular stiffness occurs in >40 years, 10 years earlier.

Risk factors for coronary artery disease in young patients: Comparison between urban and rural groups: A hospital based study

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Introduction: CAD is the leading cause of death worldwide. The prevalence of coronary artery disease and its various risk factors are different among both urban and rural populations. CAD is becoming more and more common among younger individuals. There are many risk factors for CAD in young and it is essential to find out prevalence and distribution of these risk factors among urban and rural population which will help in primary and secondary prevention of the disease.

Objective: To assess the risk factors for coronary artery disease in young patients. To compare the risk factors among urban and rural groups.

Methods: We conducted a hospital based observational study of 200 young patients (≤45 years of age) presenting with coronary artery disease. Risk factors for CAD were assessed among them. Patients were classified into urban and rural groups and comparison of these risk factors among them was done.

Results: Risk of CAD was (69%) in males as compared to females (31%). Male preponderance was seen as compared to females with male to female ratio of 1.4:1. 3.5% cases belonged to age group of