Clinical Features, Management, and In-hospital Outcomes of Patients with Central obesity Hospitalized with Acute Coronary Syndromes: Results from the Saudi Project for Assessment of Coronary Events (SPACE) Registry

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Background

Waist circumference (WC) is an anthropometric index usually considered a surrogate marker of abdominal fat mass (subcutaneous and intra abdominal).\(^1\)

Barrett-connor EL. Obesity, atherosclerosis, and coronary artery disease. Ann intern med. 1985;103:1010-1019
Background

- Few studies analyzed central obesity impact on prognosis after ACS world wide

- There is no data about Prevalence and Clinical Outcomes of CO in Saudi Arabia and middle east.

- The 1st study.
Objective

• To evaluate the Prevalence and effect of Central obesity on clinical characteristics, treatment regimen and prognosis in patients presenting with acute coronary syndrome (ACS).
## Methods

### Table 2.

<table>
<thead>
<tr>
<th>Country/Ethnic group</th>
<th>Waist circumference† (as measure of central obesity)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Europids</strong>*</td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>≥ 94 cm</td>
</tr>
<tr>
<td>Female</td>
<td>≥ 80 cm</td>
</tr>
<tr>
<td><strong>South Asians</strong></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>≥ 90 cm</td>
</tr>
<tr>
<td>Female</td>
<td>≥ 80 cm</td>
</tr>
<tr>
<td><strong>Chinese</strong></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>≥ 90 cm</td>
</tr>
<tr>
<td>Female</td>
<td>&gt; 80 cm</td>
</tr>
<tr>
<td><strong>Japanese</strong>*</td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>≥ 85 cm</td>
</tr>
<tr>
<td>Female</td>
<td>≥ 90 cm</td>
</tr>
<tr>
<td><strong>Ethnic South and Central Americans</strong></td>
<td>Use South Asian recommendations until more specific data are available</td>
</tr>
<tr>
<td><strong>Sub-Saharan Africans</strong></td>
<td>Use European data until more specific data are available</td>
</tr>
<tr>
<td><strong>Eastern Mediterranean and Middle East (Arab) populations</strong></td>
<td>Use European data until more specific data are available</td>
</tr>
</tbody>
</table>

*Note: Values for women vary based on body mass index (BMI).*

**Waist circumference** is measured at the midpoint between the iliac crest and lowest rib. Patients are categorized as centrally obese or not centrally obese based on their WC (> 94 cm in male, > 80 cm in female) according to the National Heart, Lung, and Blood Institute and International Diabetes Federation.
Analysis of the SPACE

- Total enrolled: 1433
- Central obesity: 1005 (70%)
- No central obesity: 428 (30%)
## Demographics

<table>
<thead>
<tr>
<th>Variables</th>
<th>Overall n=1433 n (%)</th>
<th>Central obesity n=1005 (70%) n (%)</th>
<th>No Central obesity n=428 (30%) n (%)</th>
<th>P-Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean age (SD), years</td>
<td>58(12.93)</td>
<td>56.6(12.16)</td>
<td>55.8(14.68)</td>
<td>0.311</td>
</tr>
<tr>
<td>Male, n (%)</td>
<td>1141(79.62)</td>
<td>747(74.33)</td>
<td>394(92.06)</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Saudi nationality, n (%)</td>
<td>1061(74.04)</td>
<td>753(74.93)</td>
<td>308(71.96)</td>
<td>0.242</td>
</tr>
</tbody>
</table>
Male Patients (1141)

- C.O.
- No C.O.
Prevalence In Female Patients (292)

- 258 (88%): Central obesity
- 12%: No C.O.
Co-morbidities & risk factors

C.O. / NO C.O.

- HTN
- DM
- H.LIPDEMIA
- Current smoker
- FHX CAD
- HX of HF

P < .001
P < .001
P < .001
P < .021
P < .001

C.O.
No C.O.
Clinical presentation

C.O. / NO C.O.

- Killip class > 1
- SBP ≤ 90 mmHg
- HR ≥ 100 beats per minute
Admission diagnosis
C.O. / NO C.O.

- UA: P < .001
- STEMI: P < .001
- NSTEMI: No significant difference
In hospital medications

C.O. / NO C.O.
Diagnostic and therapeutic Intervention
C.O. / NO C.O.

- Coronary angiography: P = .08
- LMD: No significant difference
- SVD: P = .02
- DVD: No significant difference
- TVD: P = .035
- Stents used: No significant difference
- CABG: No significant difference
Discharge medications
C.O. / NO C.O.

![Bar chart showing discharge medications comparison between C.O. and NO C.O. categories.

- Aspirin
- Plavix
- B-Blocker
- ACEI
- ARB
- Statin

Significance levels:
- P = 0.02
- P = 0.01
- P = 0.04]
Cardiovascular events
C.O. / NO C.O.

- RE-MI
- C. SHOCK
- M. BLEEDING
- STROKE

P < .048
In-hospital mortality
C.O. / NO C.O.

P = .066
Conclusions

• Prevalence of central obesity is high among Saudi patients presenting with ACS compared with the developed countries.
• They have high prevalence of cardiovascular risk factors.
• CO patients were more likely to be treated with beta-blockers, ACE inhibitors or ARB, and statins.
• Patients with CO were less likely to have cardiogenic shock, and had a trend toward lower in hospital mortality (1.89 vs 3.50%, p=0.066)
Clinical impact of the study

• Managing CO-related modifiable risk factors in secondary prevention.
Study Limitations

- We cannot exclude the possibility that the impact of WC might have been blurred by differences in measurement techniques at the different sites and centers.

- We cannot exclude the possibility that central obesity may affect the mortality in long-term follow-up.

- Small sample number.
### Comparison with International data

<table>
<thead>
<tr>
<th>Variables</th>
<th>Our Study Saudi Arabia</th>
<th>Zeller et al France</th>
<th>KAMIR Study Korea</th>
</tr>
</thead>
<tbody>
<tr>
<td>Prevalence</td>
<td>70%</td>
<td>50%</td>
<td>56%</td>
</tr>
<tr>
<td>Gender</td>
<td>&gt; Female</td>
<td>-</td>
<td>&gt; Male</td>
</tr>
<tr>
<td>Age</td>
<td>55</td>
<td>70</td>
<td>65</td>
</tr>
<tr>
<td>DM</td>
<td>++</td>
<td>+</td>
<td>+</td>
</tr>
<tr>
<td>HTN</td>
<td>++</td>
<td>++</td>
<td>++</td>
</tr>
<tr>
<td>Smoking</td>
<td>-</td>
<td>+</td>
<td>+</td>
</tr>
</tbody>
</table>
Thank you