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RISK OF CARDIAC MORTALITY AND MYOCARDIAL INFARCTIONS IN BMI<20 KG/M2: CAN RATES OF MYOCARDIAL INFARCTIONS EXPLAIN THE HIGHER CARDIAC MORTALITY?

Poster Contributions

Poster Sessions, Expo North

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Authors: *Abhishek Sharma, Saurav Chatterjee, Wen-Chih Wu, Edgar Lichstein, Maimonides Medical Center, Brooklyn, NY, USA, Brown University, Providence, RI, USA*

Background: Clinical studies have reported increased total and cardiovascular mortality among coronary artery disease (CAD) patients who are underweight [Body mass index (BMI) <20 kg/m²] as compared to those with normal body weight [BMI 20-24.9 kg/m²]. However, conflicting results have been reported regarding risk of myocardial infarction (MI) among CAD patients with low versus normal BMI.

Objective: To investigate the association between risks of MI, cardiovascular death and low BMI among patients with known CAD.

Methods: A systematic search of studies published between 1966 to September 2012 was conducted using Pub Med, CINAHL, Cochrane CENTRAL and the Web of Science databases. Observational studies reporting rate of myocardial infarction among CAD patients with low and normal BMI were identified. Two study authors independently reviewed the 628 articles and selected seven for analyses. Study title, time period, BMI, and rate of myocardial infarction on follow up were extracted manually from all selected studies. Quality of each study was assessed using the strengthening Meta-analysis of Observational Studies in Epidemiology (MOOSE) checklist. Event rates were compared using a forest plot of relative risk using a random effects model assuming inter-study heterogeneity. Statistical analysis was done with Review Manager V5.1 using Cochrane methodology.

Results: We included seven studies with 57,958 patients that had a mean follow-up of 1.5 years for analyses. CAD patients who had low BMI (<20 kg/m²) were found to have increased cardiac mortality (RR = 3.82 [95%CI 1.99- 7.36]) and 2.6 % higher rate of myocardial infarction as compared to CAD patients who have normal BMI. After adjustment for age and gender, the relative risk (RR) for cardiac mortality and myocardial infarction were 2.26 (1.58-2.96) and 1.17 (0.90-1.65) respectively among patients with a low BMI (<20kg/m²) compared to those with normal BMI values.

Conclusion: Risk of myocardial infarction cannot explain the reported higher cardiovascular mortality among underweight population with CAD. Further prospective studies are needed to investigate other sources of cardiovascular death.