



## AB052. 77. Breast density, metabolic syndrome and body composition in breast cancer

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**Background:** The metabolic syndrome (MetS) is prevalent among post-menopausal breast cancer patients and is associated with increased breast cancer risk. Mammographic breast density (BD) is also positively associated with increased breast cancer risk. The relationship between MetS and mammographic BD is unclear and requires further investigation. The aim of this study was to examine the relationship between the MetS and its component features with BD.

**Methods:** A total of 112 post-menopausal women with breast cancer were recruited. Body composition [body mass index (BMI), waist circumference (WC)] was measured objectively in participants prior to surgery. Metabolic profiles were measured in blood taken from participants prior to surgery. MetS was defined according to the International Diabetes Federation (IDF) criteria. BD was classified according to the Breast Imaging Reporting and Data System (BI-RADS). Participants were categorised into those with ‘Dense’ (BI-RADS score 3 or 4) or ‘Less Dense’ (BI-RADS score 1 or 2) breasts. Unpaired t-test was used for parametric or Mann Whitney tests for non-parametric data. Categorical data was analysed using Fisher’s exact test or Chi squared test as appropriate.

**Results:** An inverse relationship was observed between

measures of adiposity and BD. Participants with ‘dense’ (BI-RADS 3/4) breasts had significantly lower BMI ( $P=0.0034$ ), waist circumference ( $P=0.0007$ ), systolic blood pressure ( $P=0.03$ ), circulating insulin level ( $P=0.009$ ) and glycated haemoglobin ( $P=0.008$ ) than those with ‘less dense’ (BI-RADS 1/2) breasts. HDL was significantly higher in those with ‘dense’ versus those with ‘less dense’ breasts ( $P=0.03$ ). Participants with ‘less dense’ breasts were significantly more likely to be insulin resistant ( $\text{HOMA-IR} \geq 2$ ) than those with ‘dense breasts’ (50.6% *vs.* 20%;  $P=0.01$ ). Other components of the MetS (Serum triglycerides, glucose and diastolic blood pressure) did not differ significantly between participants with ‘dense’ and ‘less dense’ breasts. No differences in overall survival were observed between participants with ‘Dense’ versus those with ‘Less Dense’ breasts.

**Conclusions:** Although both MetS and BD are positively associated with breast cancer risk; it is unlikely that the MetS is related to an increase in breast cancer risk through a mechanism involving BD. Further work on this study is currently underway and will involve adjusting for potential confounders including age and BMI as well as examining the relationship between MetS and BD in pre-menopausal breast cancer patients.

**Keywords:** Breast; density; metabolic; syndrome

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