

studied method and seems most promising for clinical application. **Objective** - To compare effect of menopause on endothelial dysfunction by brachial artery flow mediated dilation (BAFMD) in postmenopausal women versus menstruating non-diabetic, non-obese females of same age group. **Methodology**: We conducted a case control study in Departments of Obstetrics & Gynaecology and Cardiology, PGIMER, Chandigarh. Subjects were menopausal women between 45- 55 years of age. Controls included the women of same age group who had not attained menopause. To detect a statistical significant difference of approximately 4-8% between cases and controls, 50 women were recruited in both groups with a power of 90% and confidence interval of 95%. The study was approved by the ethics committee of the institute. Effect of menopause on BAFMD, NMD (nitro-glycerine mediated dilation), FRS (Framingham Risk score) and individual components of FRS was studied. **Results**: A statistically significant negative correlation was found between BAFMD and FRS, BAFMD and age and BAFMD and duration of menopause. On studying the effects of FRS, individual components of FRS and duration of menopause on smooth muscle function, statistically significant negative correlation was found between NMD and FRS and NMD and Age. **Conclusion**: It was concluded that the menopausal status does not affect endothelial function in women who are at low risk of cardiovascular disease but it affects the vascular smooth muscle function. We also found significant correlation between FMD and NMD ( $p = 0.00$ ) signifying that both endothelial dysfunction and vascular smooth muscle dysfunction are inter-related. On evaluating the strength of correlation of FMD with FRS, different parameters of FRS and duration of menopause, FMD was found to have a statistically significant negative correlation with all these parameters.

## Thyroid

### THYROID NEOPLASIA AND CANCER

#### *Do Ultrasound Patterns and Clinical Parameters Modify the Probability of Thyroid Cancer Predicted by Molecular Testing in Thyroid Nodules With Indeterminate Cytology?*

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**Background**: Molecular testing (MT) is commonly used to refine cancer probability in thyroid nodules with indeterminate cytology. Whether or not ultrasound (US) patterns and clinical parameters can further modify the risk of cancer in nodules predicted to be positive or negative by molecular testing remains unknown. **Aim**: To test if clinical parameters, including age, gender, nodule size (by US), Bethesda category (III, IV, V), US pattern (American Thyroid Association [ATA] system vs American College of Radiology TIRADS), radiation exposure, and family history of thyroid cancer (TC) can modify the probability of TC or NIFTP predicted by MT in thyroid nodules with indeterminate cytology. **Methods**: We studied 257 thyroid nodules from 10 study centers with fine-needle aspiration (FNA) yielding indeterminate cytology and informative MT results using the ThyroSeq v3 genomic classifier (TSv3). Univariate and multivariate logistic regression were used for data analysis. **Results**: In this group of thyroid nodules, out of all parameters studied using univariate regression, patient gender, age, and Bethesda category were significantly associated with TC/NIFTP probability ( $P < 0.05$  for each). The ATA US patterns showed a positive trend ( $P = 0.1211$ ), whereas TIRADS was not predictive ( $P = 0.3135$ ). A multivariate regression model incorporating the four most informative covariates (gender, age, Bethesda category, and ATA US patterns) (model #1) yielded a C index = 0.653;  $R^2 = 0.108$ . Male gender and Bethesda category V significantly increased risk, and age demonstrated a nonlinear risk profile. When TSv3 was added to model #1, the C index increased to 0.888;  $R^2 = 0.572$ . However, age ( $P = 0.341$ ), Bethesda category ( $P = 0.272$ ), and the ATA US patterns ( $P = 0.264$ ) had limited predictive ability in comparison with TSv3, which dominated the predictive performance ( $P < 0.001$ ). Gender was the only parameter showing tendency for significance beyond MT ( $P = 0.095$ ). The most parsimonious model incorporated gender and TSv3 (C index = 0.889;  $R^2 = 0.588$ ). **Conclusions**: While often useful in selecting thyroid nodules for FNA, neither the ATA US nor the TIRADS scoring systems were informative in further predicting TC/NIFTP in thyroid nodules with indeterminate FNA cytology. Although age and Bethesda category were associated with TC/NIFTP probability on univariate analysis, they had limited incremental value above the high predictive ability of TSv3. Gender was the only parameter with potential contribution to predicting TC/NIFTP in addition to MT.

## Diabetes Mellitus and Glucose Metabolism

### CLINICAL AND TRANSLATIONAL STUDIES IN DIABETES

#### *FGF-21 Is A Reliable Marker Of Insulin Resistance Before The Occurrence Of Glucose Intolerance*

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