

# Polycystic Ovarian Syndrome

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## RATIO OF TOTAL TESTOSTERONE TO DIHYDROTESTOSTERONE AS A MARKER OF ADVERSE METABOLIC PARAMETERS IN POLYCYSTIC OVARY SYNDROME

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**Background:** Polycystic ovary syndrome (PCOS) is a heterogeneous disorder encompassing hyperandrogenism and metabolic disturbances. Androgen excess may correlate with metabolic risk; a lack of clarity persists regarding the specific androgen to be measured.

**Aims & Objectives:** To determine the association of total testosterone (TT) to dihydrotestosterone (DHT) ratio in assessing the adverse metabolic parameters in PCOS.

**Material and method:** This study included 44 PCOS women (age, mean±SD: 23.1±4.86 years; body mass index, BMI: 25.78±4.38 kg/m<sup>2</sup>), recruited on basis of Rotterdam criteria and 44 healthy age matched controls (age, mean±SD: 23.02±4.28 years; BMI: 20.80±3.33 kg/m<sup>2</sup>). After taking the history, physical examination and anthropometric data in all participants, TT, sex hormone binding globulin (SHBG) and insulin were measured by chemiluminescent immunoassay while DHT by ELISA. TT/DHT ratio, free androgen index (FAI) (TT/SHBG\*100) and insulin resistance (homeostatic model assessment (HOMA-IR)) were calculated.

**Results:** PCOS patients showed significantly higher levels of TT (70.46±27.54 vs. 31.31±13.84 ng/dl; p<0.001), and

FAI (11.24±9.00 vs. 3.03±2.30; p<0.001), and a low SHBG (35.00±31.99 vs. 47.07±23.86 nmol/l; p=0.048) compared to healthy controls. The TT/DHT ratio was significantly higher in PCOS patients (3.62±2.53 vs. 2.06±1.19; p<0.001), no significant difference were found for DHT (p=0.282). In PCOS patients, TT/DHT ratio was significant for impaired glucose tolerance (IGT) (P=0.038) but not for metabolic syndrome (p=0.931), obesity (p=0.094) and insulin resistance (p=0.886). Furthermore, the TT/DHT ratio was found to be high for obese (p=0.004), insulin resistant (p=0.026) and high waist circumference (WC, p=0.002) subjects, irrespective of any group.

**Conclusion:** TT/DHT ratio may be a useful surrogate marker for adverse metabolic parameters in PCOS..

### Biography

Sukanti Shah is a Resident Doctor studying MD in the Department of Endocrinology, Bangabandhu Sheikh Mujib Medical University (BSMMU), Dhaka, Bangladesh. She has attended and presented posters in reputed national and international conferences. She is also working as a member in PCOS Study Group. Her research interests are in PCOS, Infertility and Obesity.

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