

Bone Mineral Density among Women with Polycystic Ovary Syndrome

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Abstract

Background: Polycystic ovary syndrome is a prevalent reproductive endocrinopathy with hyperandrogenism and insulin resistance. The combined effects of these two opposing factors on bone make the association between bone mineral density (BMD) and PCOS controversial.

Objectives: To assess the association of BMD among women with PCOS

Methods: This cross-sectional study was done among 50 reproductive-aged women with PCOS and an equal number of controls [23.0 (21.0, 26.0) vs. 26.0 (20.0, 29.0), median (IQR), $p=0.227$] enrolled conveniently from the PCOS clinic, Dept. of Endocrinology of a University hospital over one year. History was taken, physical examinations were done, and blood was drawn in a fasting and 2-hour OGTT to measure glucose, lipids, and hormones. BMD was measured by dual energy X-ray absorptiometry, and a whole body Z-score ≤ -2 was considered osteoporosis.

Result: Despite having higher androgen and metabolic features, women with PCOS had similar levels of BMD Z-scores (-0.8 ± 0.8 vs. 0.6 ± 0.6 , $p = 0.817$) and a similar frequency of osteoporosis (4% vs. 4%, $p = 1.00$). None of the clinical and biochemical variables showed a significant association or correlation with BMD Z-scores in either group. Under subgroups of different metabolic features, women with PCOS had higher BMD Z-score than controls [-0.6 ($-1.0, -0.1$) vs. -0.9 ($-1.6, -0.8$), $p=0.038$] only in those with optimal waist circumference.

Conclusion: PCOS, per se, does not appear to confer an increased risk of low bone mass or osteoporosis in young women. The single association with waist circumference subgroups requires further validation. [*J Assoc Clin Endocrinol Diabetol Bangladesh*, 2025;4(Suppl 1): S68]

Keywords: Polycystic ovary syndrome; Bone mineral density, Osteoporosis; Androgens; Insulin resistance

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