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Association of SNP *rs*700519 in *CYP19A1* Gene with Polycystic Ovary Syndrome (PCOS) among Females of Quetta, Pakistan

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ABSTRACT Polycystic Ovary Syndrome (PCOS) is endocrine reproductive disorder which causes oligomenorrhea/ amenorrhea, infertility, type II diabetes. The present study aims in *CYP19A1* polymorphism rs700519 (C/T) identification that elevates androgen among PCOS females in Quetta, Pakistan. Cross-sectional study involved enrollment of 100 control and 100 affected females. Blood samples were collected for genetic and hormonal analysis. The samples were amplified via ARMS PCR and analyzed by sequencing. The frequency of CC genotype in control and PCOS group was 48 percent and 33 percent. For CT, it was 52 percent and 67 percent. In control group, the allele frequency for C and T was 0.74 and 0.26. In PCOS group, it was 0.67 and 0.33 for C and T, respectively. The Pearson Chi-square $p=0.031$ ($p<0.05$) at 95% Confidence Interval inferred a significant difference between the observed genotypes. The study inferred that CT genotype is a risk factor for PCOS progression in the population of Quetta.