Polycystic ovary syndrome (PCOS) is the most common cause of infertility in women and insulin resistance play an important role in its etiology. Recently according to the pleiotropic action of vitamin D (vit. D), it is some evidence that vit. D deficiency and its gene receptor polymorphisms can be involved in the etiology of insulin resistance and metabolic disorders in women with PCOS. Several studies showing association of serum 25 (OH)D levels with serum levels of androgens and SHBG, however the observations are controversial. Vitamin D deficiency (serum levels lower that 20,0ng/ml) mostly was independently to Body Mass Index associated with insulin resistance. Our data included 140 women PCOS and 100 homogenous healthy controls shown, that the serum Vit.25 (OH)D were negatively correlated with BMI, waist circumference, serum glucose, insulin, HOMA and positively with HDL cholesterol levels, and supporting several others study. VDR regulates more than 3% human genome including genes that are crucial to glucose metabolism. It has been shown that VDR related polymorphisms (Cdx2, Bsm-I, Fok-I, Apa-I and Taq-I) are related to vit D metabolism and may contribute to PCOS susceptibility. In our study of 140 women with PCOS we don't found the statistically significant the frequency of VDR genotype in polymorphisms Bsm-I, Fok-I, Apa-I and Taq-I in comparison to healthy controls, but our data suggest potential role of genotype GT of rs 7975232 (Apa-I) in hyperandrogenism in women with PCOS.