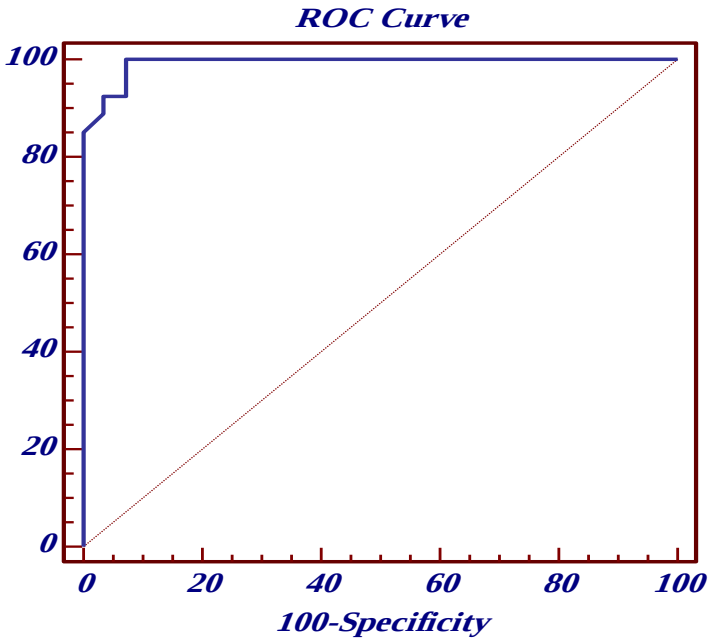

Figure (8): Example of a ROC curve

Each point on the ROC plot represents a sensitivity/specificity pair corresponding to a particular decision threshold. A test with perfect discrimination (no overlap in the two distributions) has a ROC plot that passes through the upper left corner (100 % sensitivity, 100 % specificity). Therefore, the closer the ROC plot is to the upper left corner, the higher the overall accuracy of the test **(Zweig and Camphell, 1993).**

Criterion value indicates the cut off point corresponding with the best accuracy of the test (minimal false negative and false positive results).

Results

Table (2): Main clinical, hormonal and ultrasonographic features in controls and in patients with PCOS

Group / *Hormone*	*PCOS (n=30)* *Mean ± SD*	*Controls (n=20)* *Mean ± SD*	*P*
Age (Y)	**29.4± 4.2**	**30.2± 3.5**	**>0.05**
BMI (kg/m2)	**29.3±3.4**	**22.8±2.7**	**<0.001***
AMH (ng/ml)	**10.5±4.5**	**4.1±1.9**	**<0.001***
LH (mIU/ml)	**9.2±2.12**	**4.6±1.1**	**<0.01**
FSH (mIU/ml)	**5.0±0.9**	**5.8±0.8**	**> 0.05**
LH/FSH ratio	**1.6±0.3**	**0.8±0.2**	**<0.001***
Testosterone (nmol/L)	**2.5±0.8**	**1.5±0.6**	**<0.001***
2-to 9-mm follicle no.	**14.7±3.4**	**4.8±1.7**	**<0.001***

Table (1) shows that there was a statistical significant increase between the mean AMH (P<0.001), LH (P<0.01), Testosterone (P<0.001) level in serum of patients with PCOS compared to the control group.

There was statistical significant increase in the LH/FSH ratio (P<0.001) in patients with PCOS compared to the control group.

There was statistical significant increase in the BMI (P<0.001) in patients with PCOS compared to the control group.

There was statistical significant increase in the 2-to 9-mm follicle no. (P>0.001) in patients with PCOS compared to the control group.

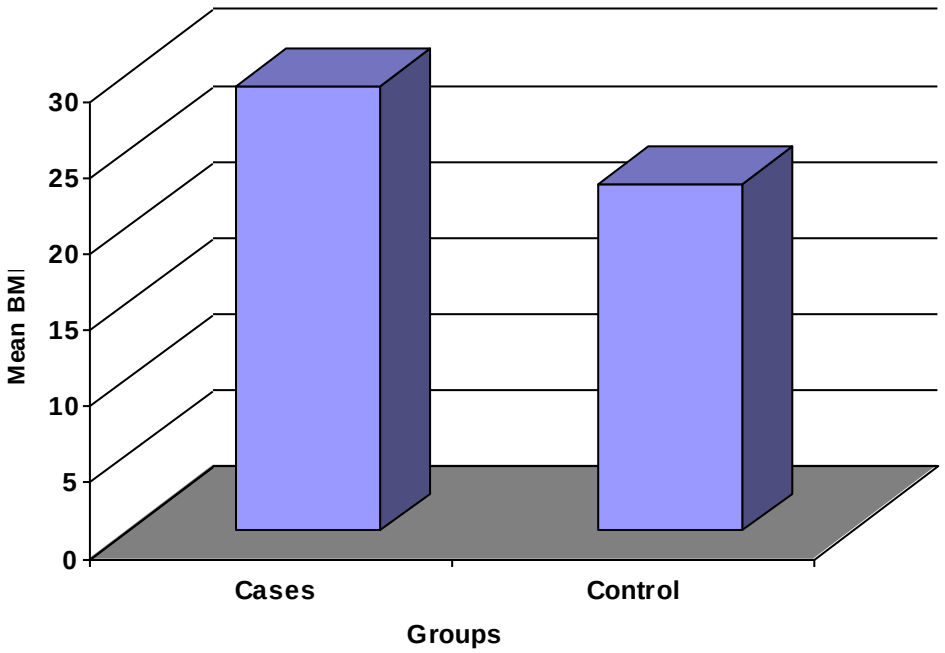

Figure (9): Mean BMI in case and control groups

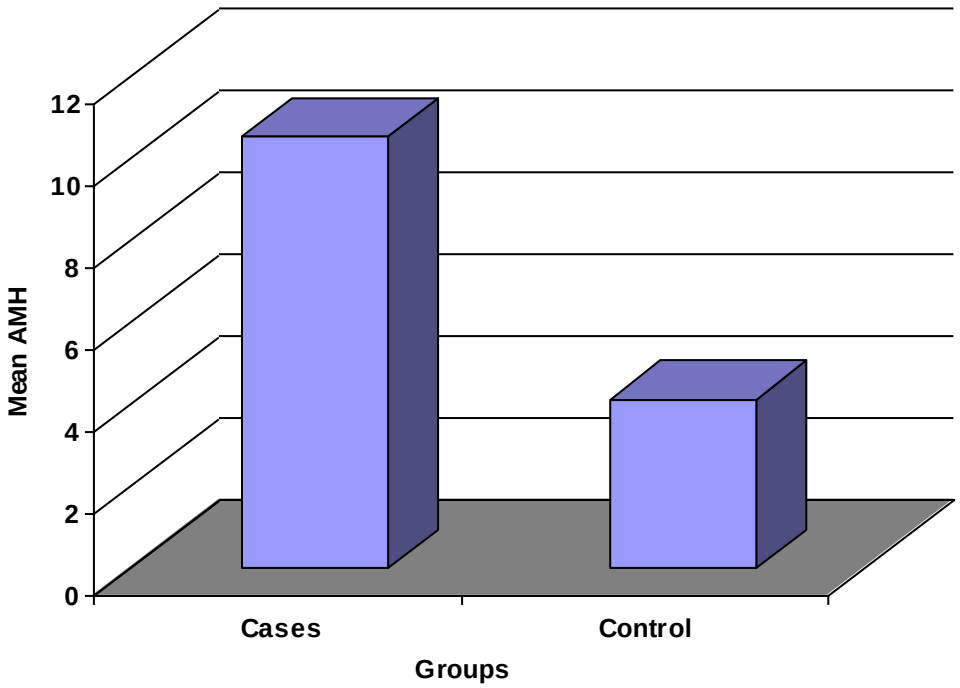

Figure (10): Mean AMH in case and control groups

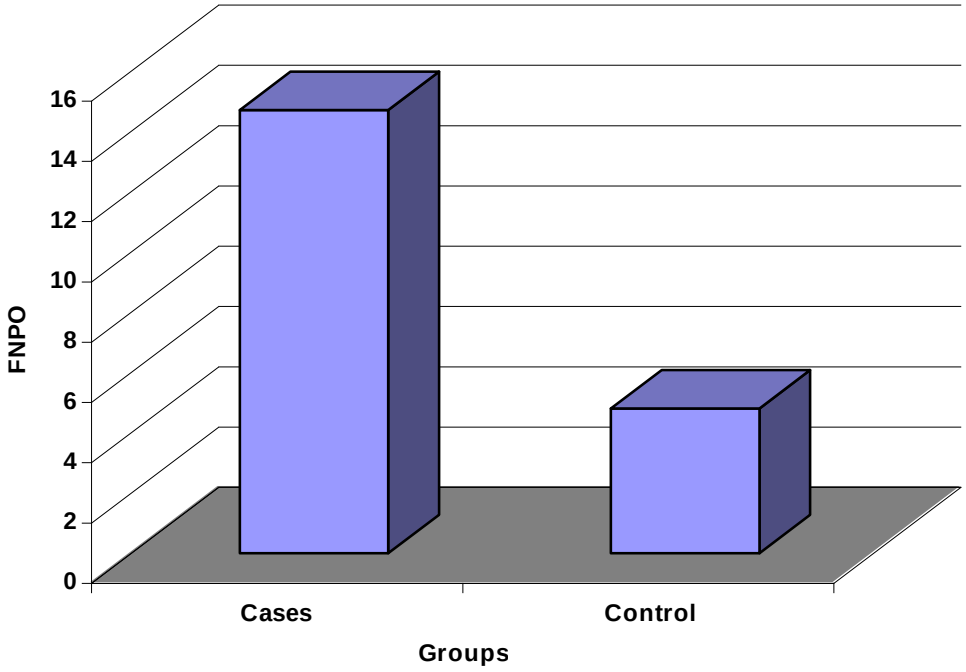

Figure (11): Mean FNPO in case and control groups

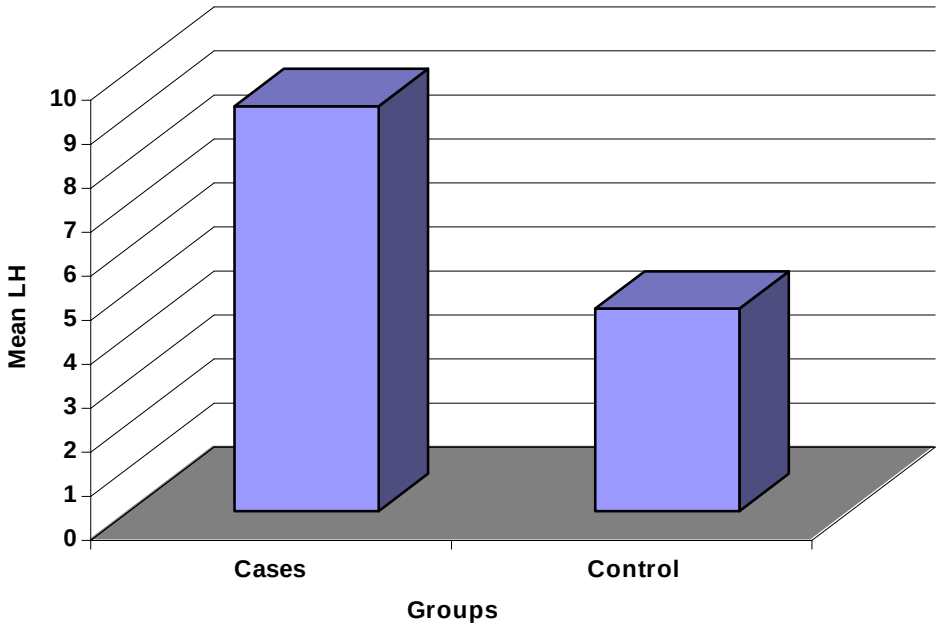

Figure (12): Mean LH in case and control groups

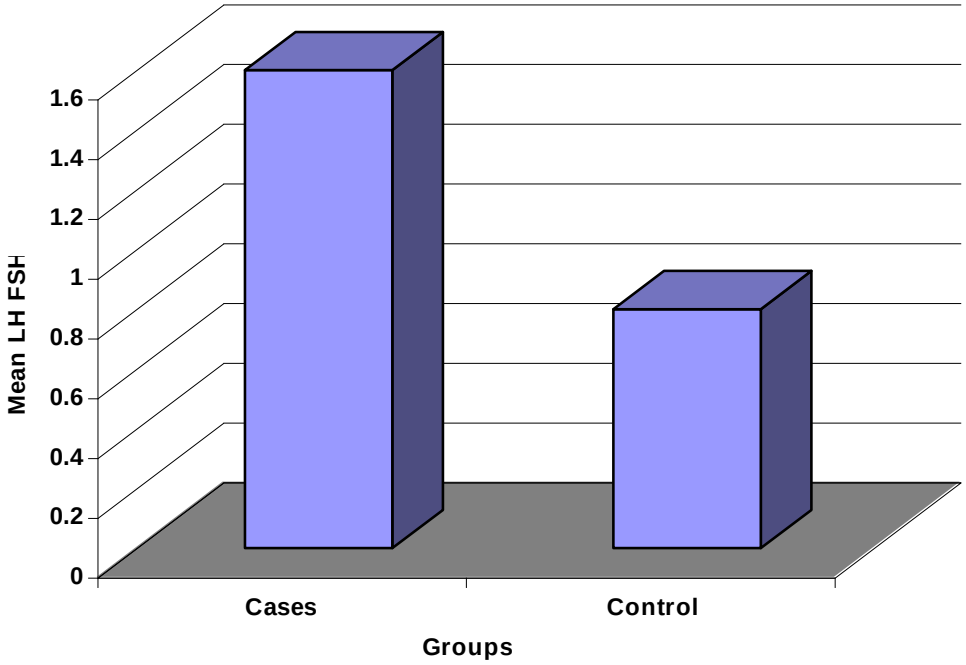

Figure (13): Mean LH/FSH ratio in case and control groups

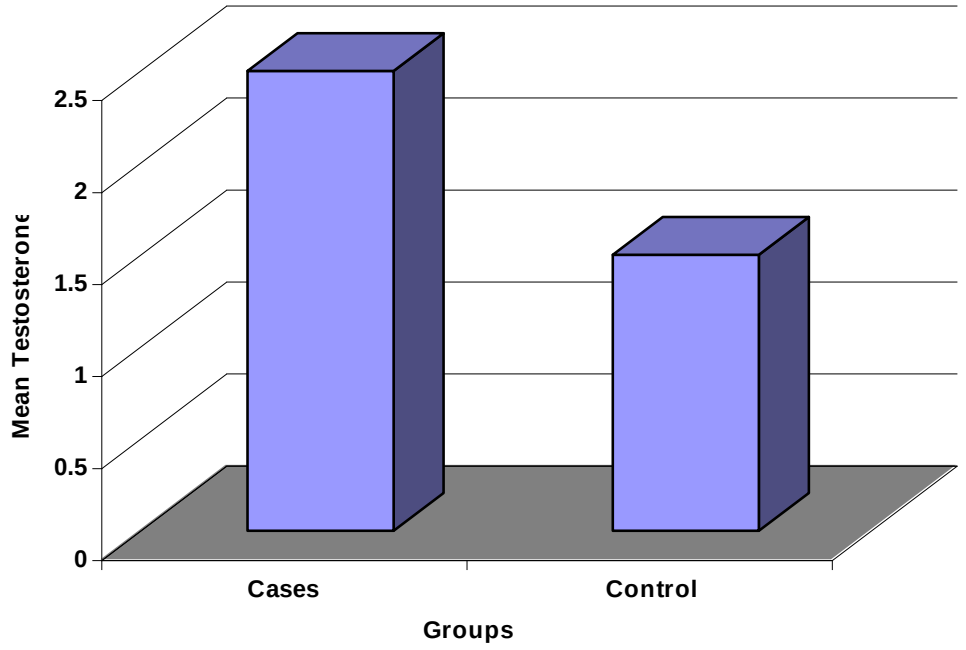

Figure (14): Mean Testosterone in case and control groups

Table (3): Correlation between AMH with other parameters in PCOS: (n=30)

	AMH	
	Pearson Correlation (r)	***P***
Age	***-0.806***	***<0.001***
BMI	***-0.412***	***<0.05***
LH	***0.289***	***>0.05***
FSH	***-0.583****	***<0.001***
LH/FSH ratio	***0.211***	***>0.05***
Testosterone	***0.678****	***<0.001***
2-to9-mm follicle no.	***0.833***	***<0.001***

There is a significant negative correlations between serum level of AMH and age (P<0.001, r=-0.806), and between serum level of AMH and BMI (P<0.05, r=0.412) (figure 16).

There is a significant positive correlations between serum level of AMH and FNPO (P<0.001, r=0.833) (figure 15).

There is a significant negative correlation between serum level of AMH and serum level of FSH (P<0.001, r=-0.583) (figure 17), where as there is a significant positive correlations between serum level of AMH and serum level of Testosterone (P<0.001, r=0.678) (figure 18).

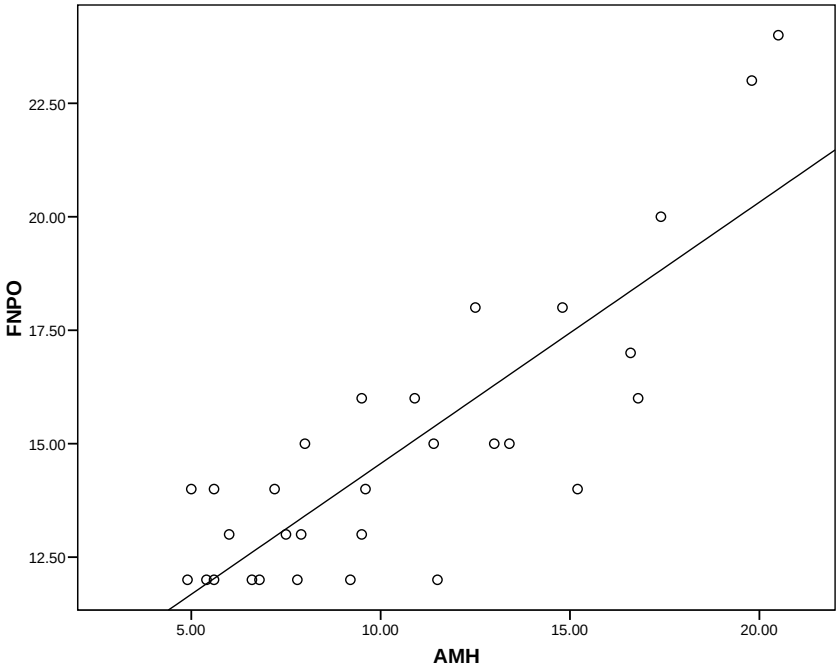

Figure (15): Correlation between AMH and FNPO in PCOS cases

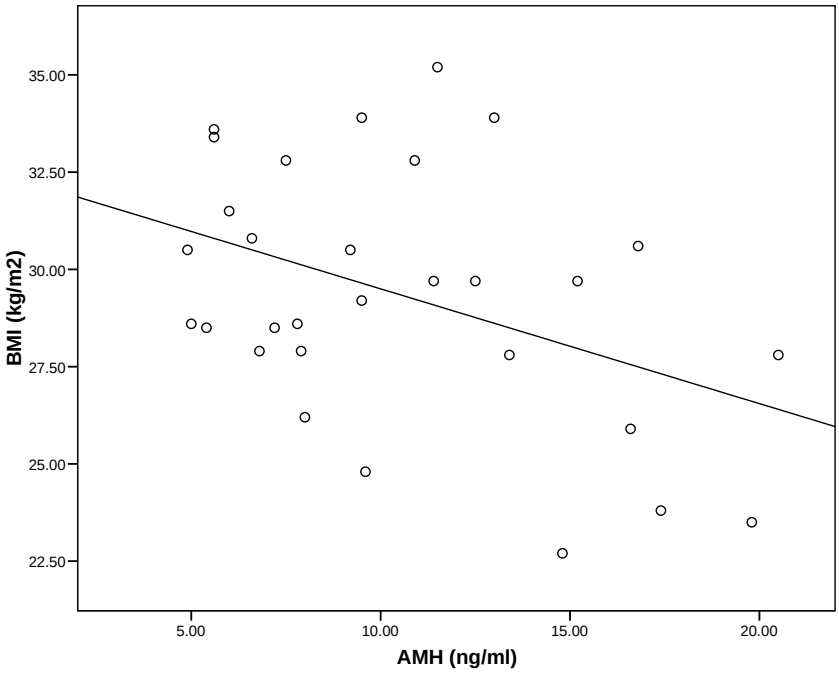

Figure (16): Correlation between AMH and BMI in PCOS cases

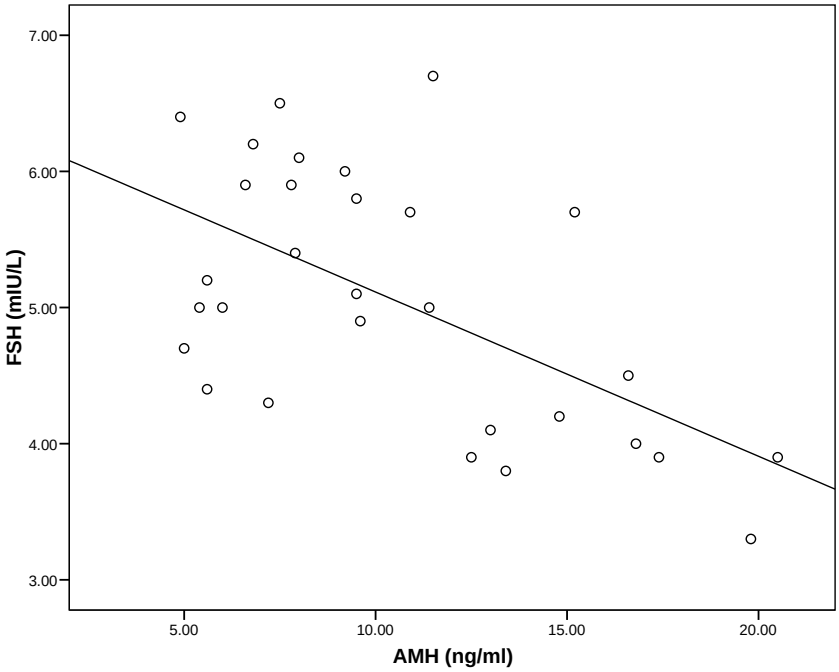

Figure (17): Correlation between AMH and FSH in PCOS cases

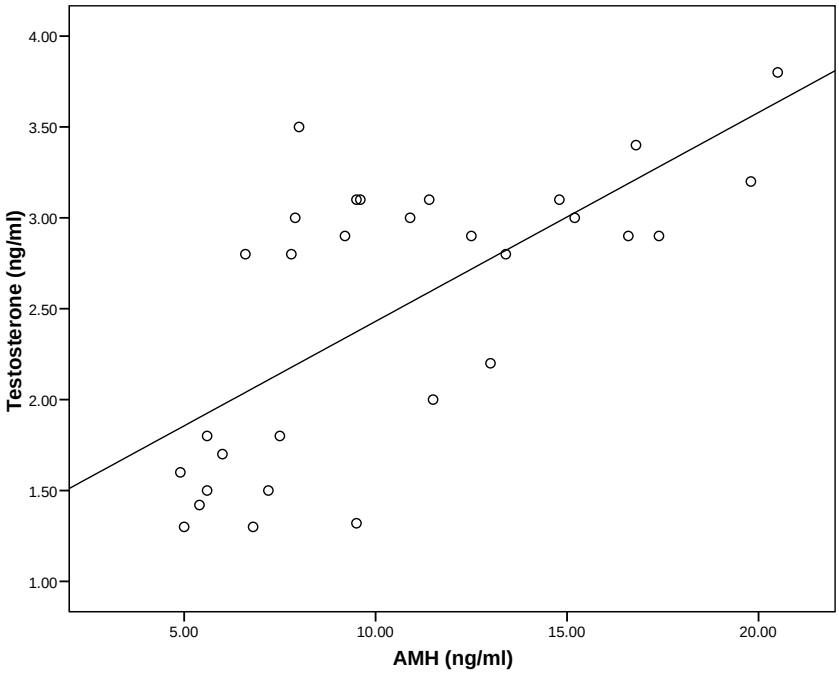

Figure (18): Correlation between AMH and Testosterone in PCOS cases

Table (4): Correlation between AMH with other parameters in Controls: (n= 20)

	AMH	
	Pearson Correlation (r)	***P***
Age	***-0.489***	***<0.05***
BMI	***-0.219***	***>0.05***
LH	***0.237***	***>0.05***
FSH	***-0.147***	***>0.05***
LH/FSH ratio	***0.212***	***>0.05***
Testosterone	***0.291***	***>0.05***
2-to-9mm follicle no.	***0.166***	***>0.05***

Table (4) show correlations between serum levels of AMH and LH, FSH, Testosterone in control group:

There is a significant negative correlations between serum level of AMH and age ($P<0.05$, $r=-0.489$).

There is no significant correlation between serum level of AMH and BMI, LH, FSH, LH/FSH ratio, Testosterone, FNPO in control group.

Table (5): Serum AMH levels in patients with PCOS according to their menstrual cycles

	Regular cycles	*Oligoamenorrhea*	*Amenorrhea*	*P*
NO. of patients	*8*	*17*	*5*	
AMH	*7.2±2.0*	*10.3±3.6*	*16.5±3.9*	*<0.01*

In PCOS patients, the mean serum level of AMH differed significantly (P< 0.01) between those presenting either with amenorrhea (16.5± 3.9), oligoamenorrhea (10.3± 3.6) or regular cycles (7.2± 2.0).

Table (6): Serum AMH levels in PCOS patients with irregular cycles (n=22) according to the presence or the absence of hyperandrogenism (HA)

	+ HA	*-HA*	*P*
NO.of pt	*18*	*4*	
AMH	*12.7±4.2*	*7.5±2.3*	*<0.001*

In PCOS patients with abnormal cycles (n= 22), the AMH levels varied significantly (P<0.001) according to the presence of hyperandrogenism (12.7± 4.2) or the absence of hyperandrogenism (7.5± 2.3).

Receiver Operating Characteristic (ROC) curve:

ROC curve analysis was done to test diagnostic potency of AMH assay in PCOS.

It was found that AMH at a certain value 7.9 (ng/ml) had specificity of 85 %, and sensitivity of 64%, and the area under the curve was 0.813 (0.696-0.930) (fig 19.).

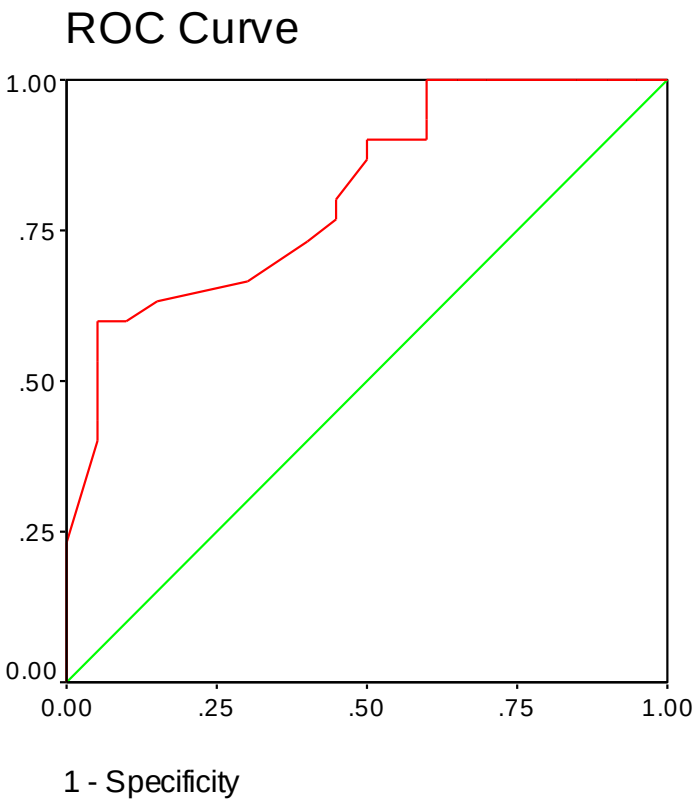

Figure (19): ROC curve analysis of serum levels of AMH (ng/ml).