4-1 Original study:

The sonographic scanning of the patient in this study from part of routine medical management, there is no patient identification or individual patient detail published

The data were represented and analyzed by using Ms Office excel computer.

After analyzing the collecting data, the following results were obtained.

4-2 Results and data analysis:

Table(1)

	age	Prostate volume	Voiding urine	Residual Urine
Mean	67.22	42.82	401.8	59.2
standard deviation	11.05882	12.45185	120.8759	32.62902

Table (4-2-1) the incidence of the residual urine in BPH patients:

	Frequency	Percent
10	3	6.0
20	4	8.0
30	5	10.0
40	3	6.0
50	13	26.0
60	7	14.0
70	1	2.0
90	6	12.0
100	6	12.0
150	2	4.0
Total	50	100.0

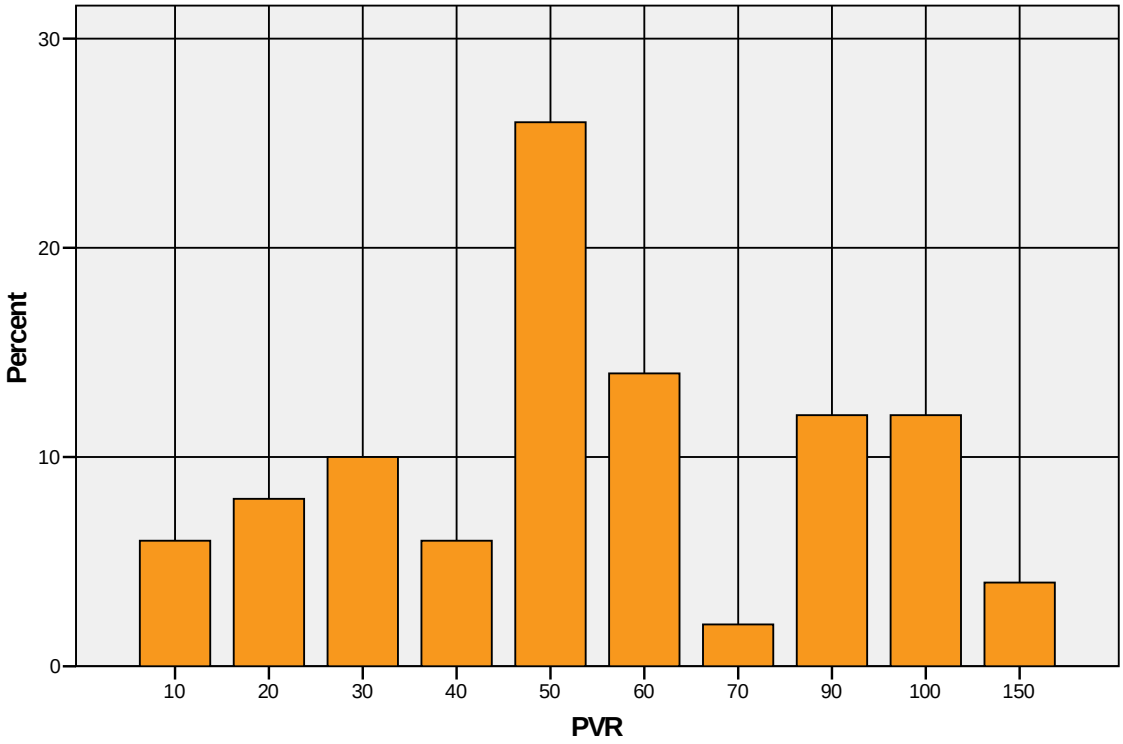


Fig (4-2-1)

Table (4-2-2) the incidence of volumes of BPH:

	Frequency	Percent
31	5	10.0
32	4	8.0
34	2	4.0
35	9	18.0
36	1	2.0
37	1	2.0
38	5	10.0
39	1	2.0
40	2	4.0
41	5	10.0
42	2	4.0
44	1	2.0
55	1	2.0
60	1	2.0
61	5	10.0
64	1	2.0
65	3	6.0
81	1	2.0
Total	50	100.0

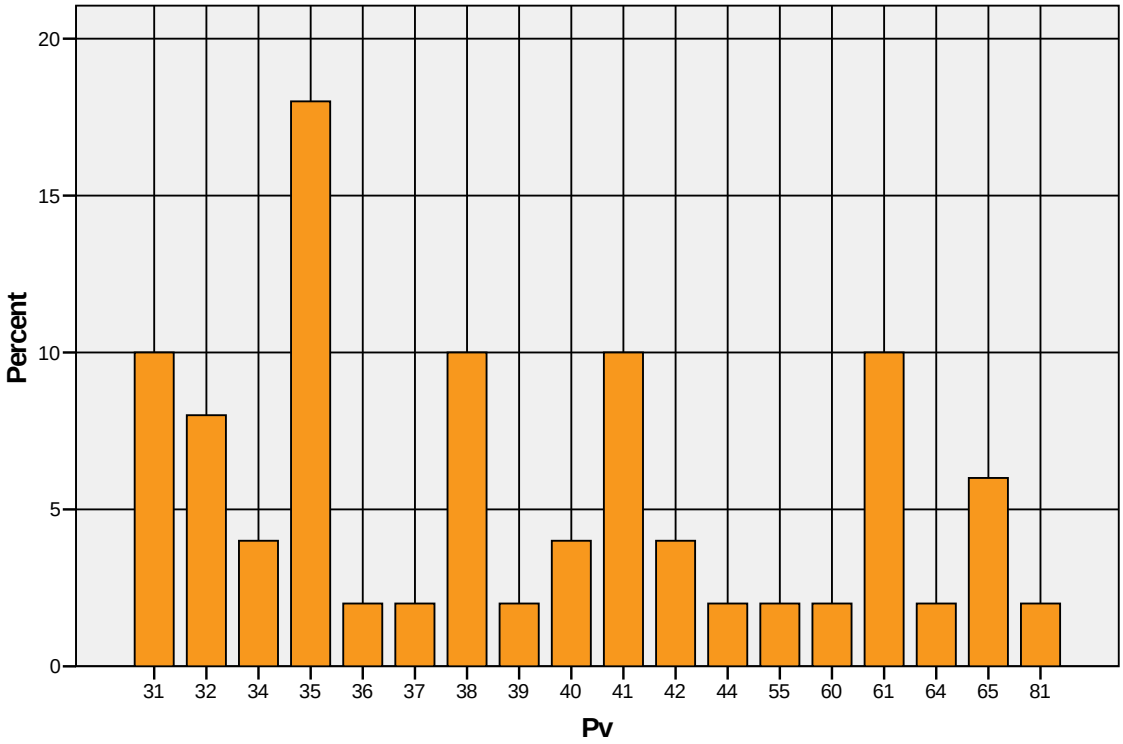


Fig (4-2-2)

Table (4-2-3) the incidence of age:

	Frequency	Percent
45 - 49 year	1	2.0
50 - 54 year	7	14.0
55 - 59 year	4	8.0
60 - 64 year	12	24.0
65 - 69 year	3	6.0
70 - 74 year	4	8.0
75 - 79 year	9	18.0
80 - 84 year	9	18.0
85 - 90 year	1	2.0
Total	50	100.0

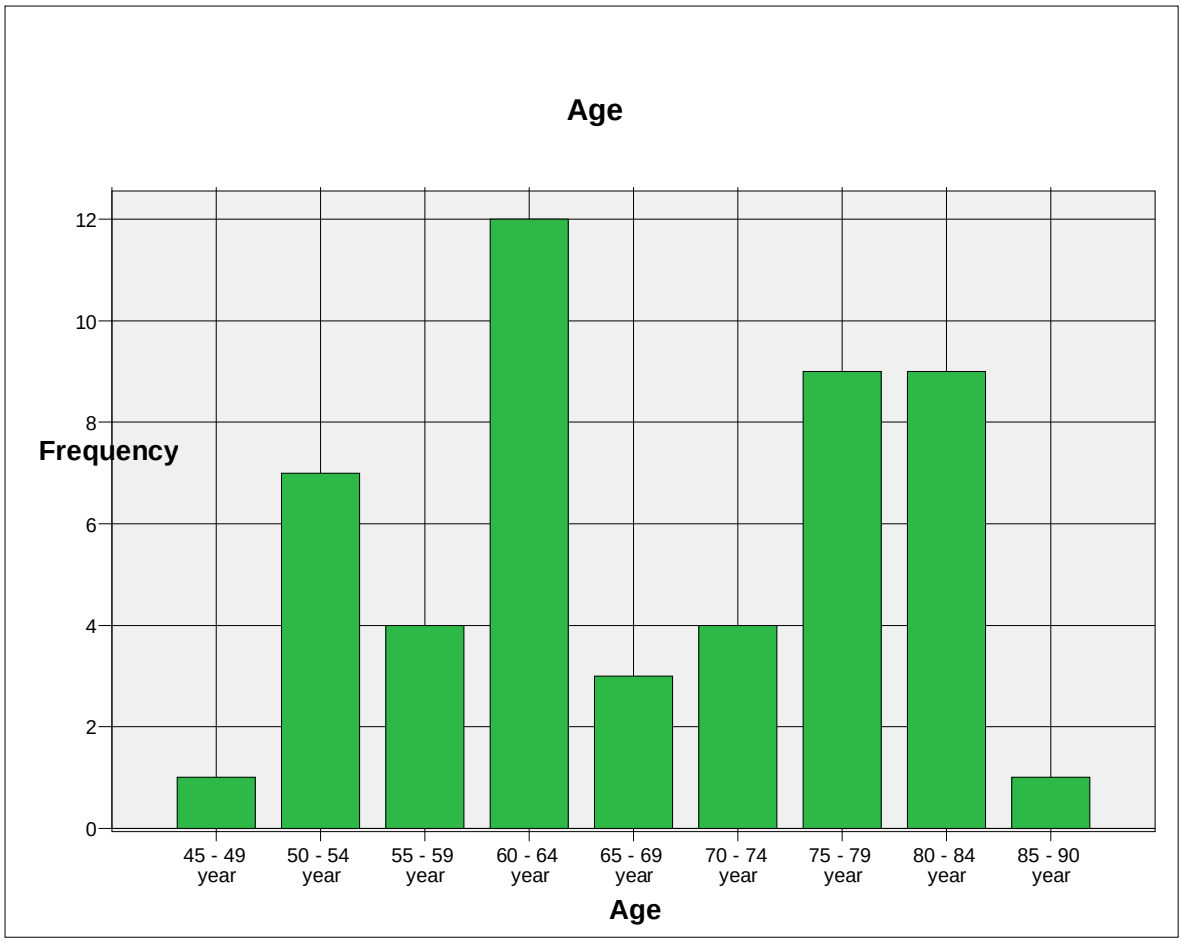


Fig (4-2-3)

Table (4-2-4) the incidence of voiding urine:

	Frequency	Percent
200	1	2.0
250	5	10.0
300	13	26.0
340	1	2.0
350	3	6.0
400	9	18.0
500	11	22.0
550	1	2.0
600	5	10.0
700	1	2.0
Total	50	100.0

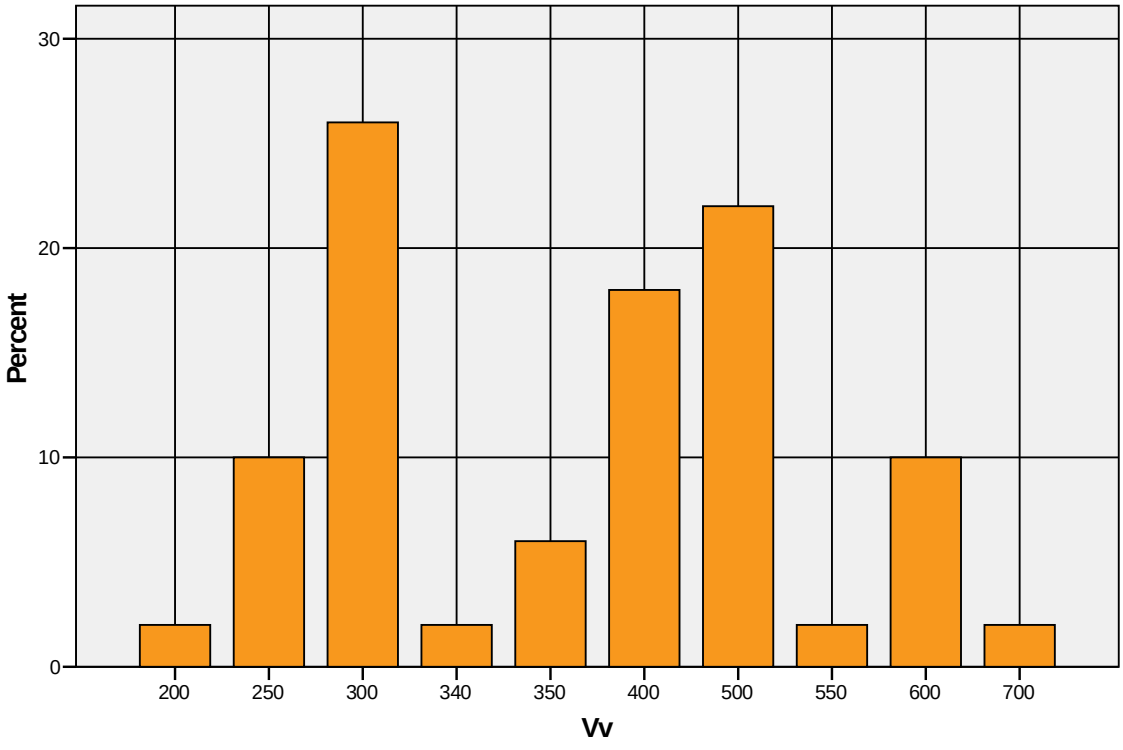


Fig (4-2-4)

Table (4-2-5) the incidence of cystitis:

	Frequency	Percent
1	30	60.0
2	20	40.0
Total	50	100.0

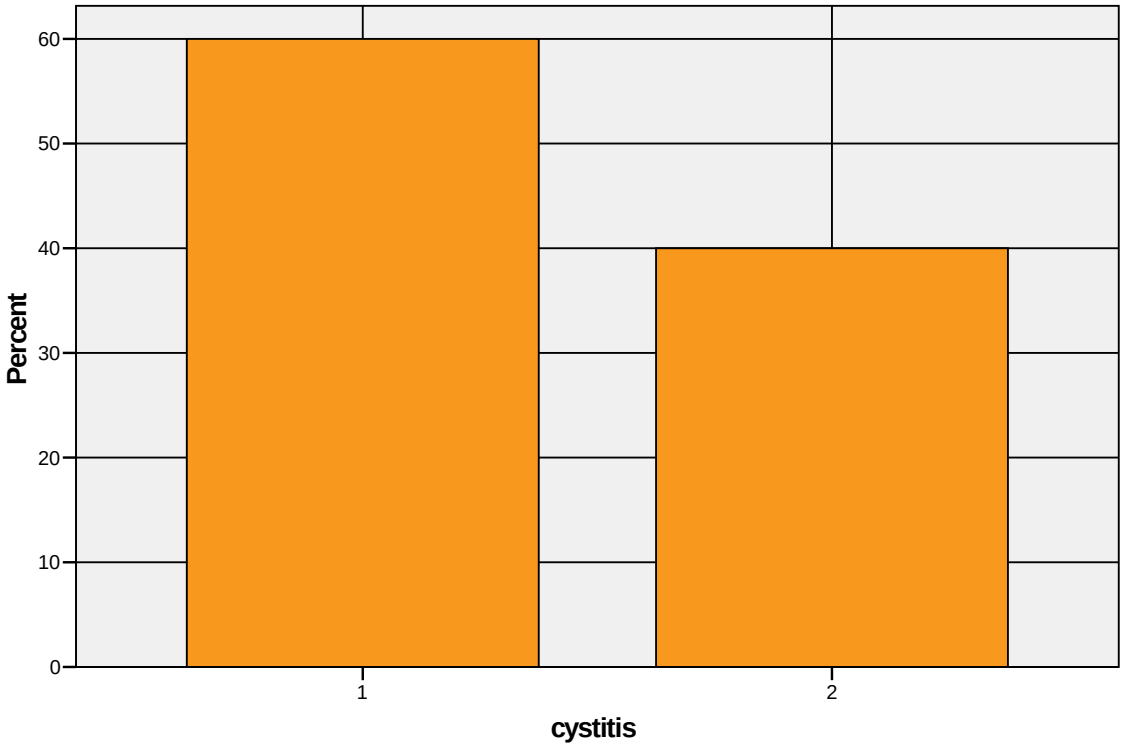


Fig (4-2-5)

Table (4-2-6) the incidence of the retention urine:

	Frequency	Percent
1	22	44.0
2	28	56.0
Total	50	100.0

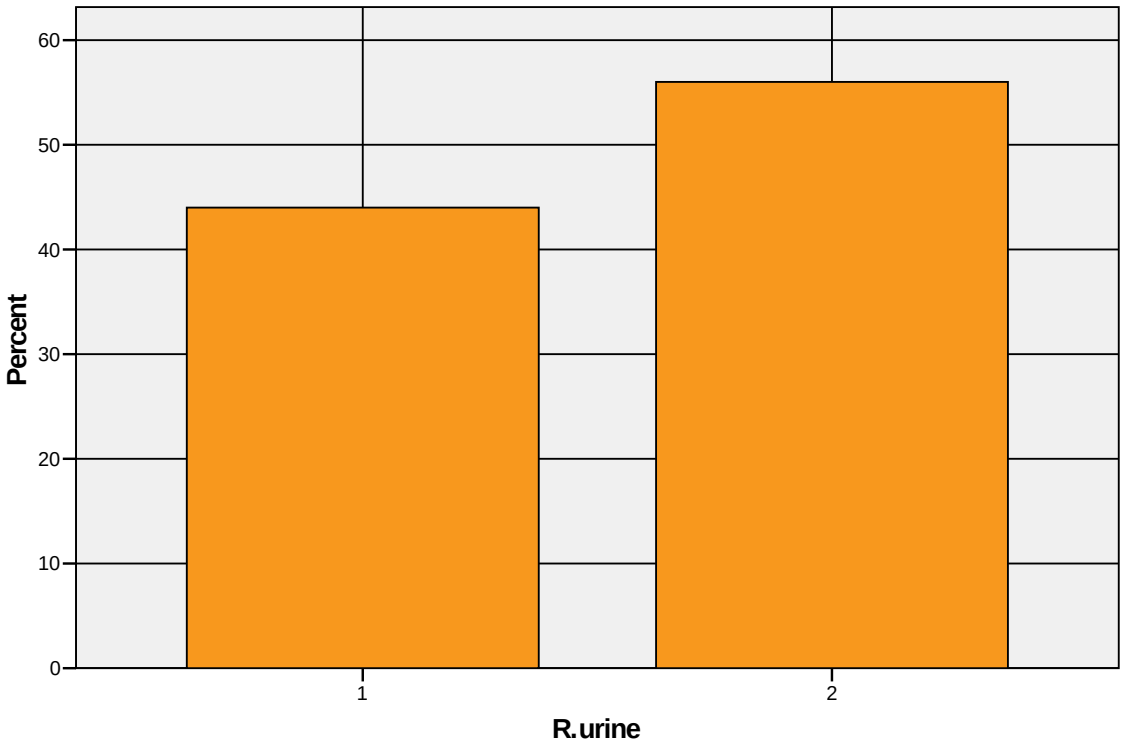


Fig (4-2-6)

Table (4-2-7) the incidence of the calcification:

	Frequency	Percent
1	18	36.0
2	32	64.0
Total	50	100.0

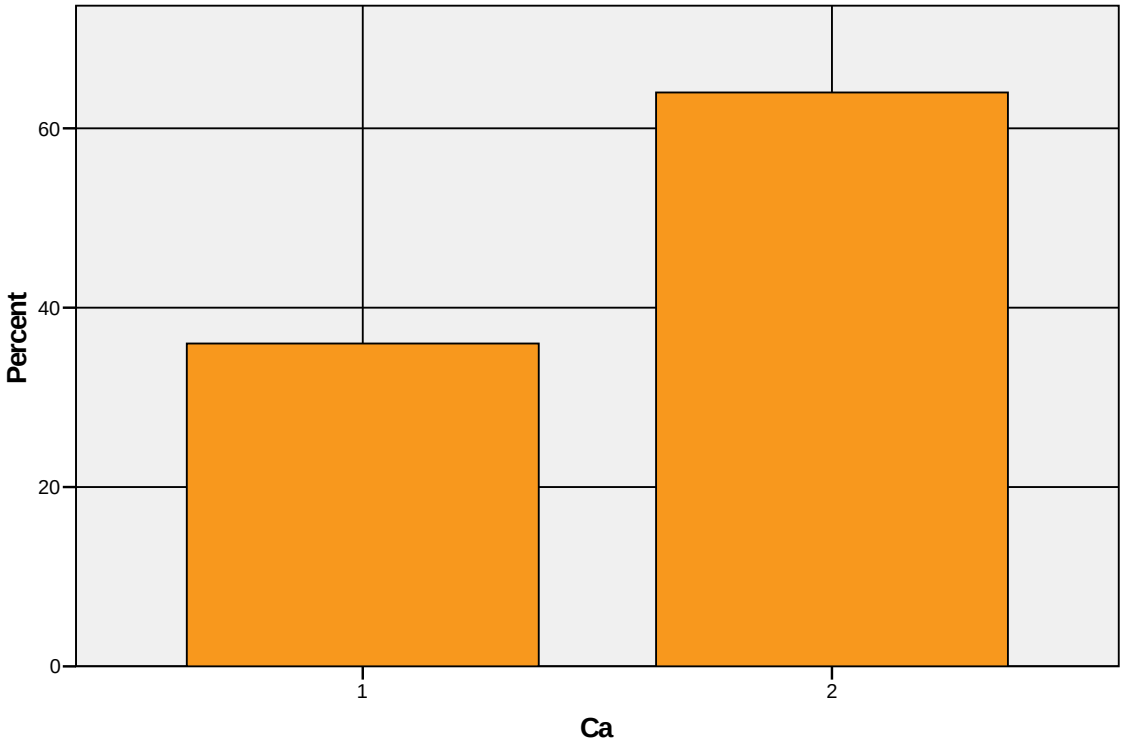


Fig (4-2-7)

Table (4-2-8) the relation between prostate volume , Cystitis and Calcification

		Prostate volume	Cystitis	Calcification
Prostatic volume	Pearson Correlation	1	-.296*	-.494**
	Sig. (2-tailed)		.037	.000
	N	50	50	50
Cystitis	Pearson Correlation	-.296*	1	.102
	Sig. (2-tailed)	.037		.481
	N	50	50	50
Calcification	Pearson Correlation	-.494**	.102	1
	Sig. (2-tailed)	.000	.481	
	N	50	50	50
*. Correlation is significant at the 0.05 level (2-tailed).				
**. Correlation is significant at the 0.01 level (2-tailed).				

Table (4-2-9) the Relation between the prostate volume and cystitis

prostate volume	Cystitis Yes	cystitis NO	Total
30-39	13	15	28
40-49	8	2	10
50-59	0	1	1
60-69	8	2	10
70-79	0	0	0
80-89	1	0	1
Total	30	20	50

*-

Chi-Square Tests			
	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	15.671a	17	.547
Likelihood Ratio	19.331	17	.310
Linear-by-Linear Association	4.296	1	.038
N of Valid Cases	50		

a. 35 cells (97.2%) have expected count less than 5. The minimum expected count is .40.

Fig (4-2-9)(a) the relation between prostate volume and cystitis:

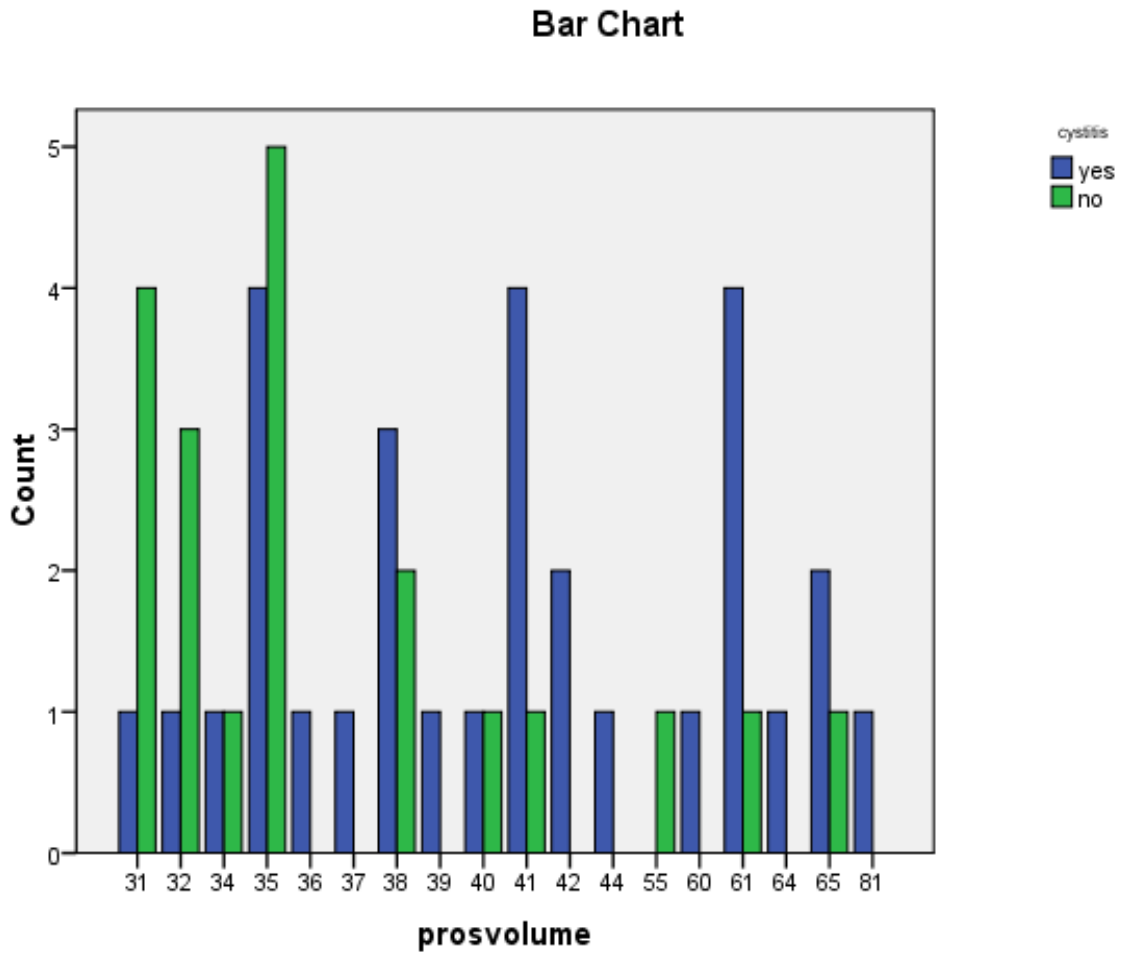
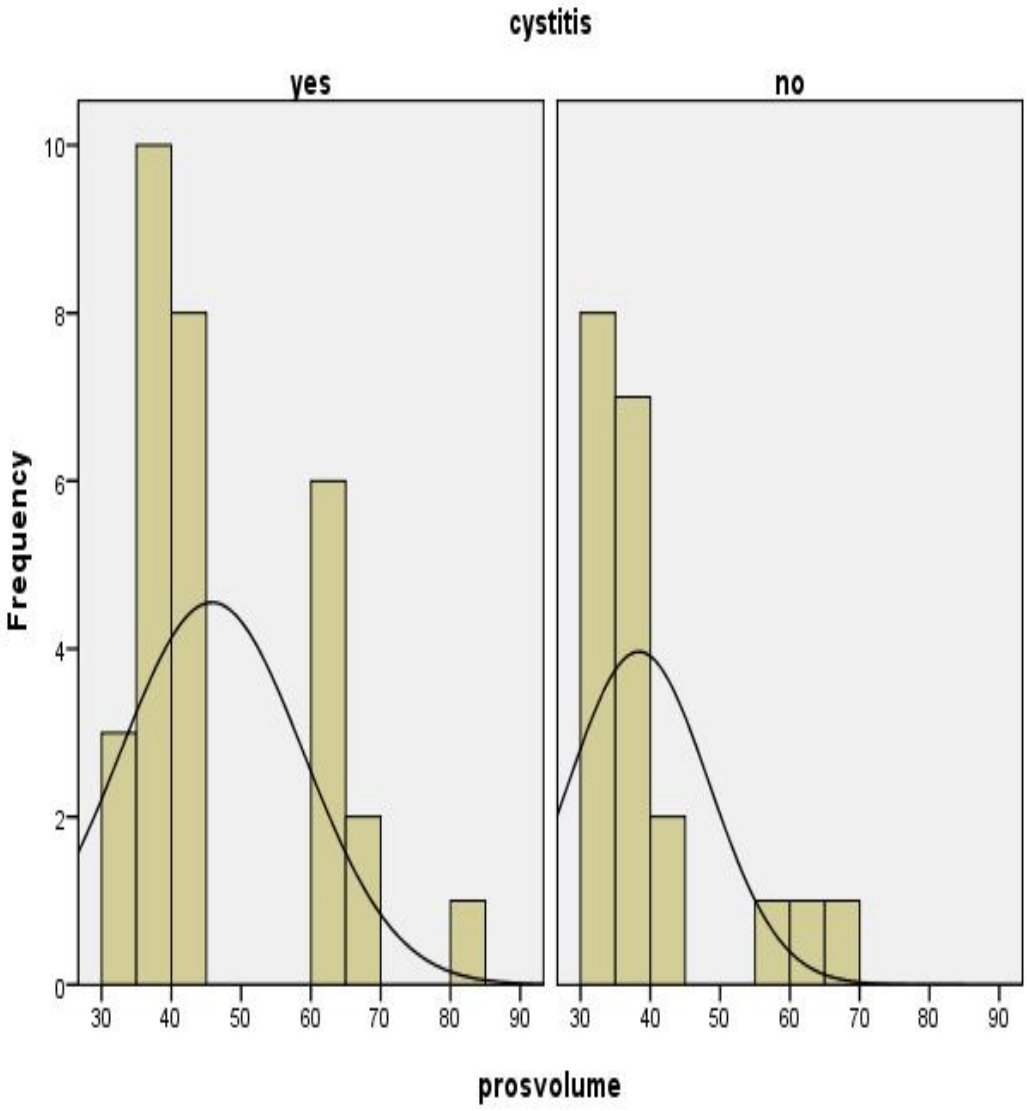


Fig (4-2-9)(b) The relation between the prostate volume and cystitis:



Table(4-2-10) The relation between the prostate volume and Calcification:

prostate volume	Calcification Yes	Calcification NO	Total
30-39	3	25	28
40-49	6	4	10
50-59	1	0	1
60-69	8	2	10
70-79	0	0	0
80-89	0	1	1
Total	18	32	50

Chi-Square Tests			
	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	28.877a	17	.036
Likelihood Ratio	37.513	17	.003
Linear-by-Linear Association	11.973	1	.001
N of Valid Cases	50		
a. 35 cells (97.2%) have expected count less than 5. The minimum expected count is .36.			

Fig (4-2-10)(a) The relation between the prostate volume and calcification:

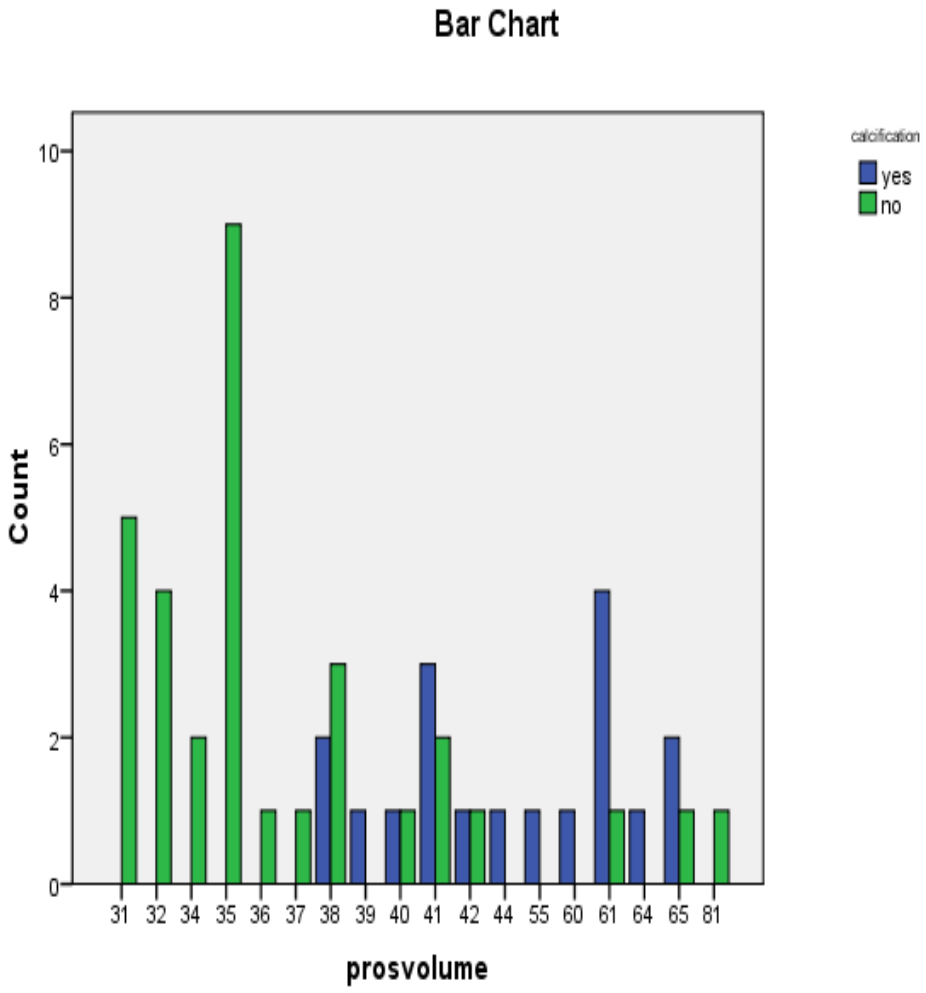


Fig (4-2-10)(b) The relation between the prostate volume and calcification:

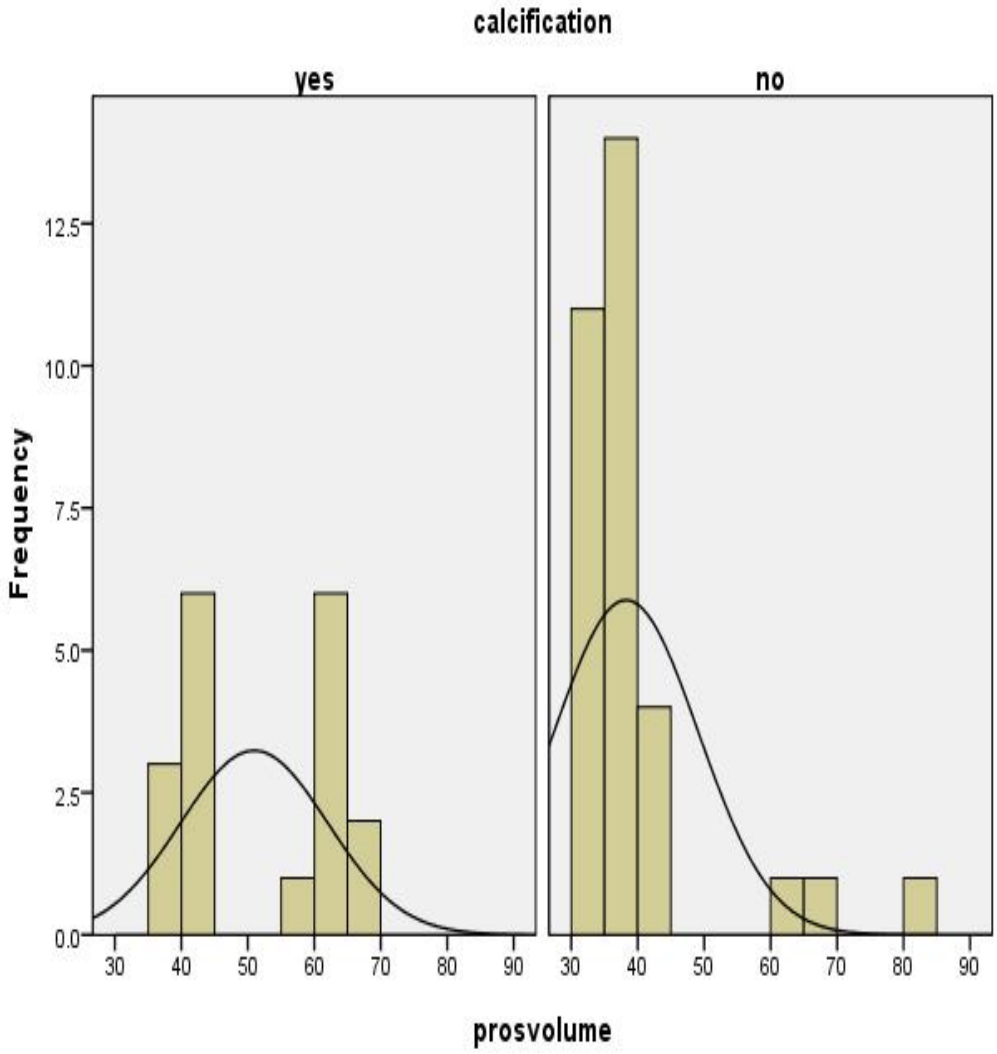
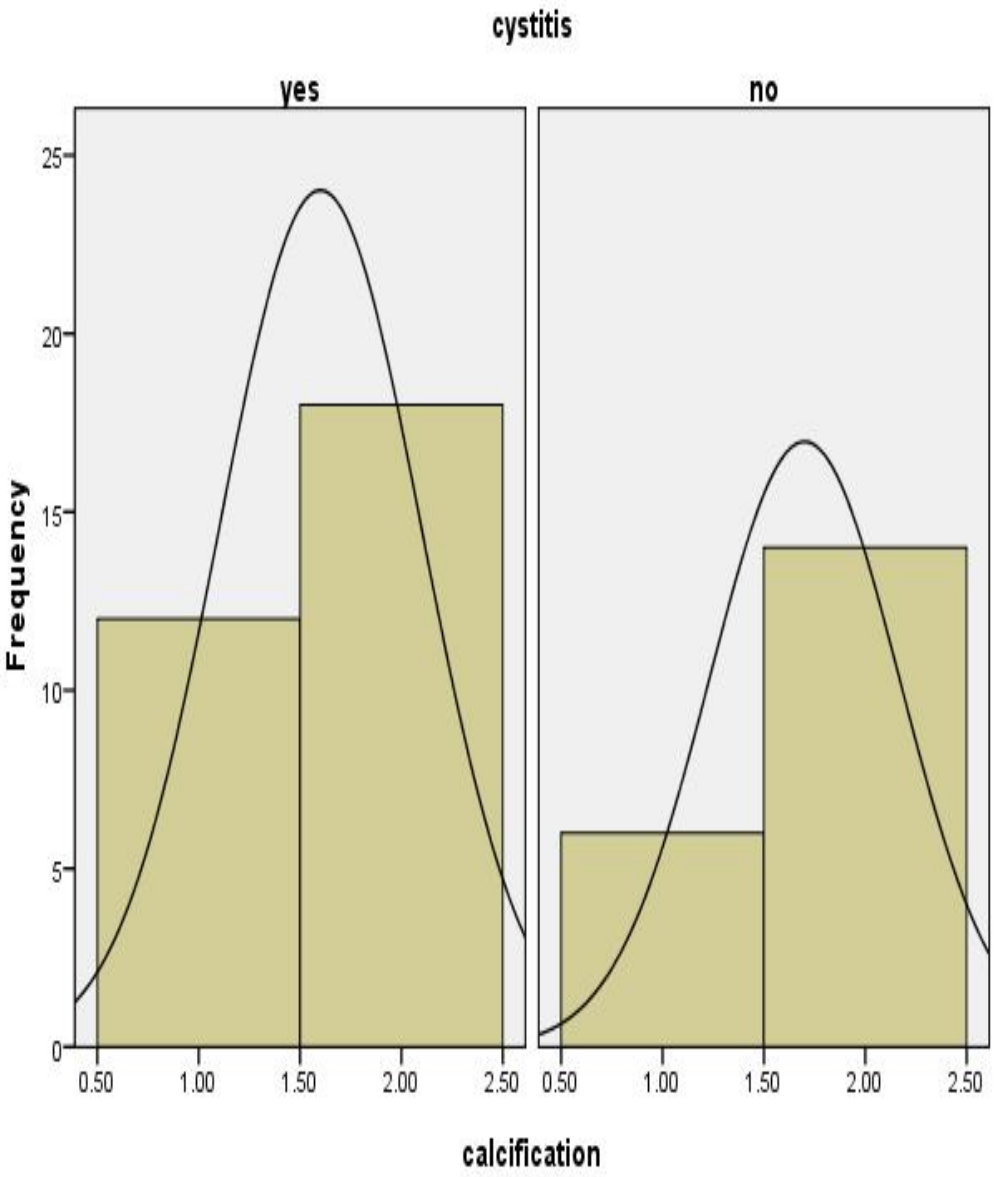
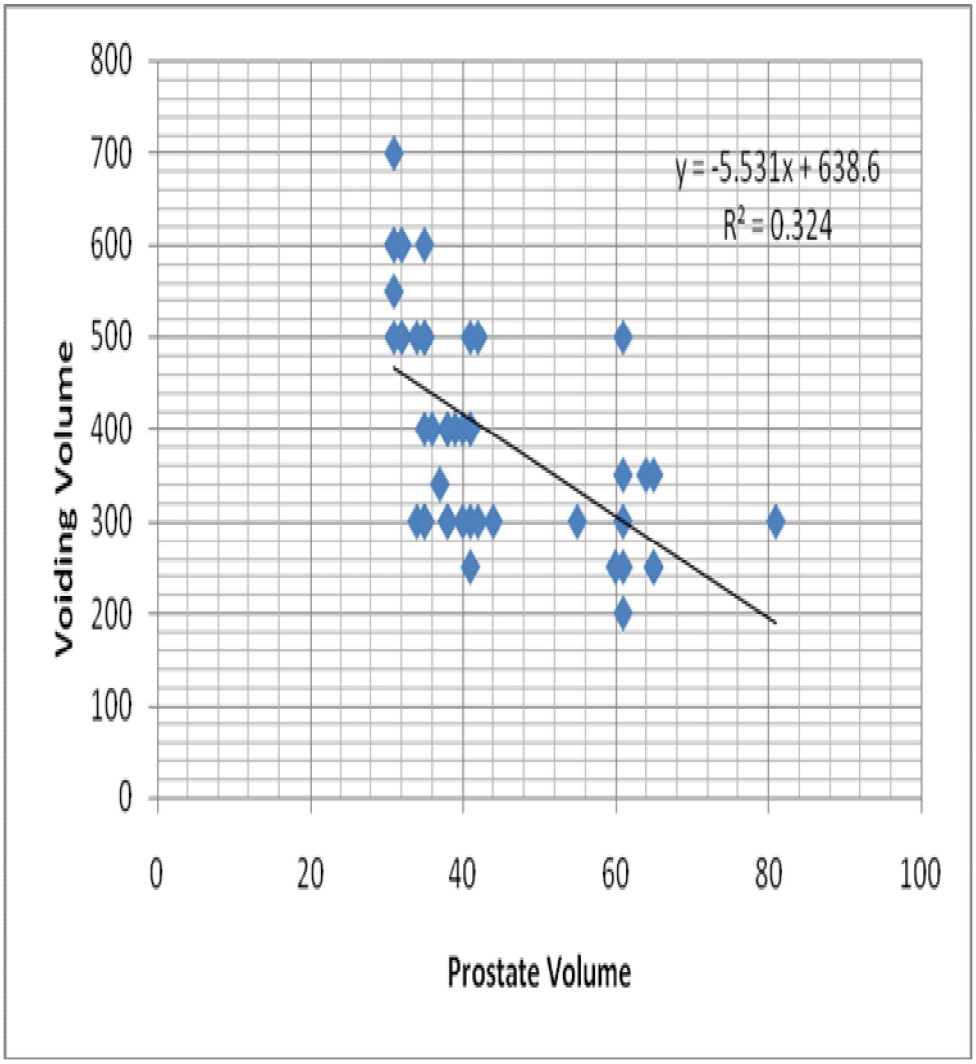


Fig (4-2-11) The relation between the cystitis and calcification:



Fig(4-2-12) the relation between prostate gland volume and voiding urine volume



Fig(4-2-12)

Fig (4-2-13) the relation between prostate gland volume and age

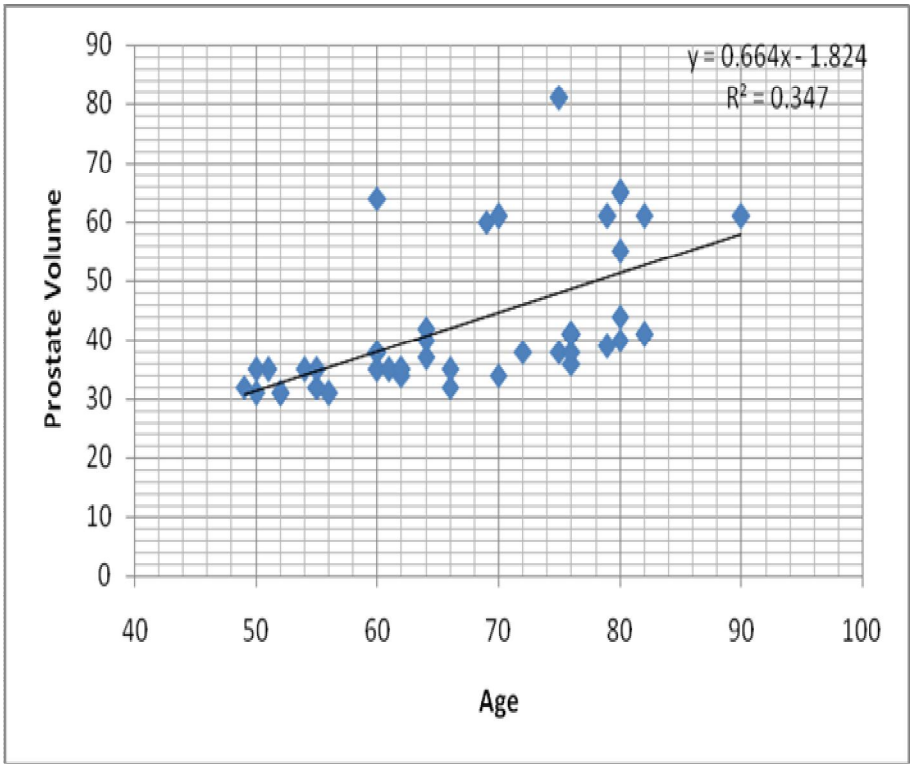
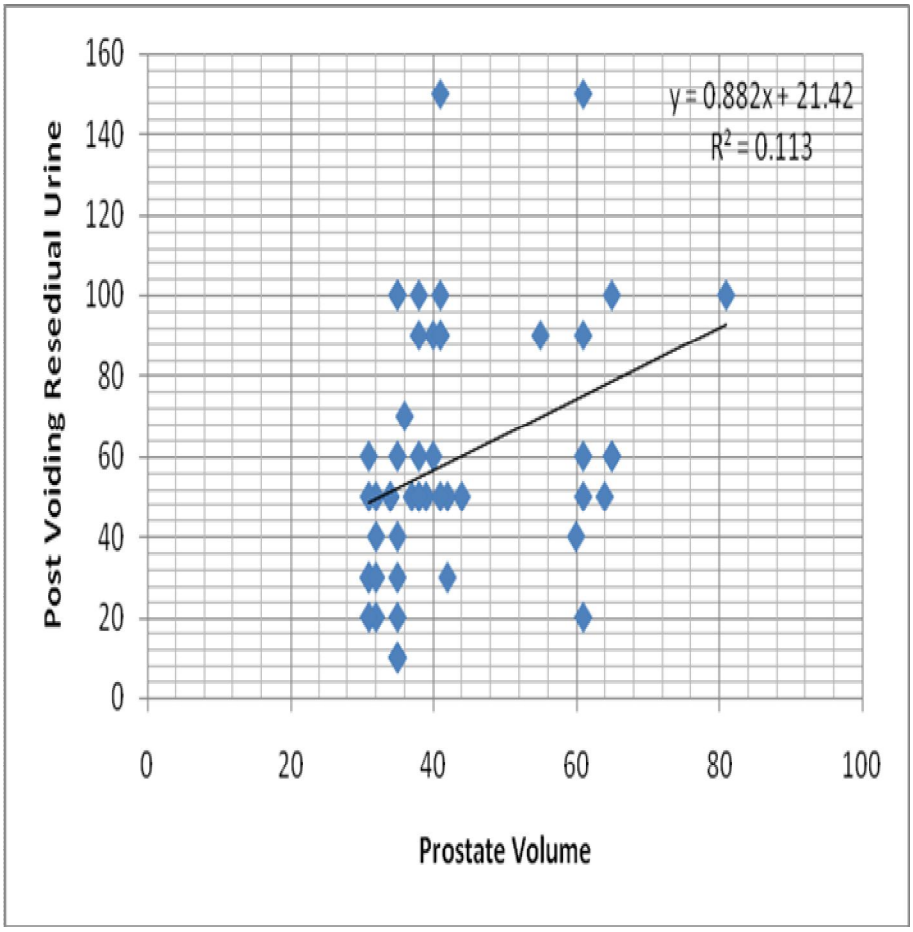


Fig (4-2-13

Fig(4-2-14) the relation between the prostate gland volume and the volume of the residual urine



Fig(4-2-14)

5-1 Discussion:

This study screening and prospective one carried in Sudan. Several previous studies in various setting has been supported ultrasonographic scanning as safe, cost effective, reliable, and accurate tool for the volume of the residual urine in the benign prostatic hyperplasia.

According to the results that were shown in the chapter four, depending on ultrasonographic scan done to 50 patients in the study, the researcher found that the(1)has less percentage of volume of the residual urine occurrence(2%)the volume (70ml), and most percentage of the residual urine volume occurrence(26%) the volume(50ml), and the intermediate volume of the residual urine has averaged percentage in compare to other two volume.

Table (4-2-1) showed that the incidence of residual urine volumes represents from the 50 patients.

Table (4-2-2) showed that the incidence of the prostate gland volume represents from the patients.

Table (4-2-3) showed that the incidence of the age represents from the patients.

Table (4-2-4) showed the incidence of voiding urine represents from the patients.

Table (4-2-5) showed that the incidence of the cystitis represents from the patients.

Table (4-2-6) showed that the incidence of the retention urine represents from the patients.

Table (4-2-7) showed that the incidence of the calcification represents from the patients.

Table(4-2-8) showed the relation the prostate volume and both cystitis and calcification ,with cystitis (0.037) , and calcification (0.000).

Table(4-2-9) showed the relation prostate volume and cystitis, when prostate gland volume is increase with the cystitis increased. Table (4-2-10) showed the relation between the prostate volume and calcification ,thus prostate volume is increase the calcification increasing. The fig (4-2-11) showed the relation between cystitis and calcification ,thus cystitis is increase with increasing the calcification. Finally the last three fig(4-2-12),(4-2-13),(4-2-14) showing the relation between prostate gland volume and voiding urine volume ,the relation between prostate gland volume and age, the last one is important showed the relation between the prostate gland volume and the volume of the residual urine, the volume of prostate gland increase with increasing the volume of the residual urine. .

The study as establish to demonstrate the use fullness of the ultrasonography in measurement of residual urine volume in BPH it is likely that ultrasonography is suitable for this purpose, and would not confused with other clinical conditions.