Result

The present study included 50 patients with acute anterior myocardial infarction, age ranged 40 to 75 years with mean of 57 s ± 9.4 years, 88% are males and 12% are females, fifty percent were diabetic, 58% were hypertensive, 36% were smokers and 50% had abnormal lipid profile.

Systolic dysfunction (EF<50%) was present in 27 (54%) of patients, one patient had sever (2%), 16 (32%) had moderate systolic dysfunction and 10 (20%) had mild systolic dysfunction.

Diastolic dysfunction was present in 39 (78%) of patients, 15 patients (30%) had grade I, 18 patients (36%) had grade II and 6 patients (12%) had grade III diastolic dysfunction.

Thirty-nine patients (78%) received streptokinase, 32 patients (64%) received beta blocker and 46 patients (92%) received ACE inhibitor.

Table (1): Comparison of patients with different demographic and clinical data as regard P wave dispersion.

Characters	P.wave dispersion (mean ± SD) msc	P value
Males (n= 44) Females (n=6)	57.64 60.00	0.891
Diabetics (n=25) Non-diabetics (n=25)	58.64 59.28	0.887
Hypertensive (n=29 Normotensive (n=21)	60.00 57.52	0.59
Smokers (n= 18) Non-smokers (n=32).	60.72 57.97	0.558
Hyperlipidemia (n=25) Normal lipid profile (n=25).	59.28 57.97	0.515

This table shows that there is no significant difference between different patients groups as regard P wave dispersion.

Table (2): Correlation of demographic and clinical data with P wave dispersion:

	PWD	
	r	P
Age	0.689	0.000
Systolic BL.p	-0.043	0.767
Diastolic BL.p	-0.056	0.700
Heart rate	0.129	0.371
Ck. MB	0.182	0.205

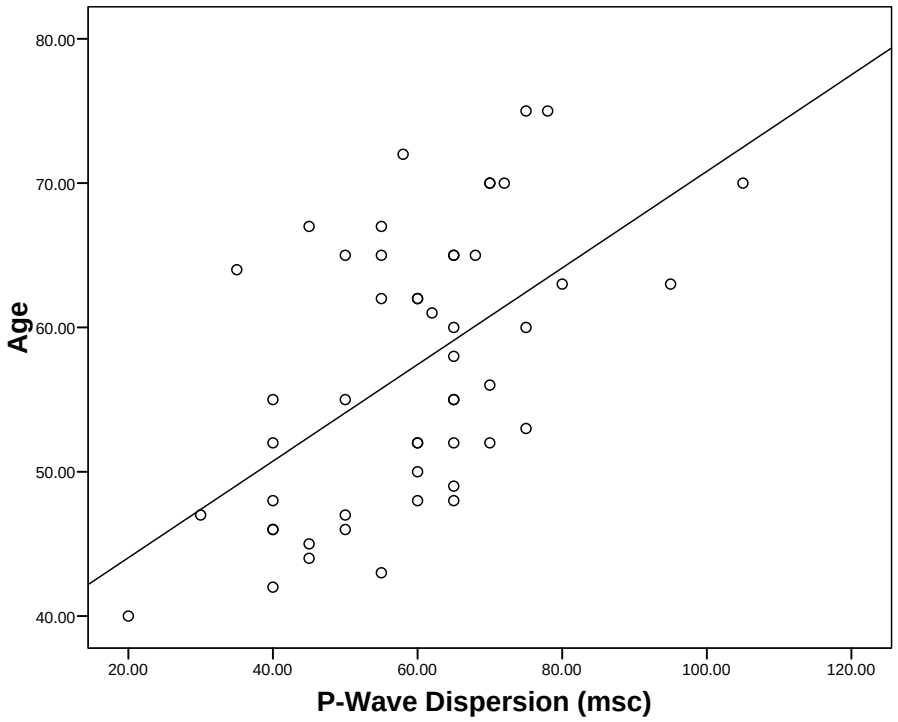

Figure (11): Correlation of PWD and age.

This table shows that among the parameters studies in this table, age is the only parameter that correlate positively and significantly with P wave dispersion. This means that with increasing age there is a parallel increase in P wave dispersion.

Table (3):Comparison of P wave duration and dispersion between patients received and those not received thrombolytic therapy.

	Non thrombolysis group (n=11)	Thrombolysis group (n=39)	P
Pmax	114.27±11.22	116.95±15.2	0.591
Pmin	57.55±14.64	57.62±11.03	0.986
PWD	56.73±13.52	59.59±16.41	0.599

This table shows no significant effect of thrombolytic therapy on P wave duration and dispersion.

Table (4): Relation between therapy with beta blocker and (P) wave parameters.

	Non beta blocker group (n=18)	**Beta blocker group (n=32)**	**P**
P max	123.06±13.92	112.59±13.39	0.012
P min	59.17±14.06	56.72±10.38	0.485
PWD	64.44±14.49	55.88±15.78	0.064

This table shows no significant effect of beta blocker therapy on P wave duration and dispersion.

Table (5): Relation between therapy with ACE inhibitor and (P) wave parameters.

	Non ACE. inhibitor group (n=4)	ACE. inhibitor group (n=46)	P
Pmax	120.50±9.00	116.00±14.76	0.533
Pmin	66.75±10.28	56.80±11.63	0.105
PWD	53.75±13.15	59.41±15.99	0.496

This table show no significant effect of ACE.inhibitor therapy on P wave duration and dispersion.

Table (6): Distribution of patients according to presence or absence of systolic dysfunction.

Left ventricular systolic function	Patients (no&%).
Normal LV systolic function.	23(46%).
Systolic dysfunction.	
All grades	27(54%)
Mild	10(20%)
Moderate	16(32%)
Severe	1(2%).

This table show that about half of patients had some degree of systolic dysfunction, one fifth of them had mild, about one third had moderate and only one patient had sever systolic dysfunction.

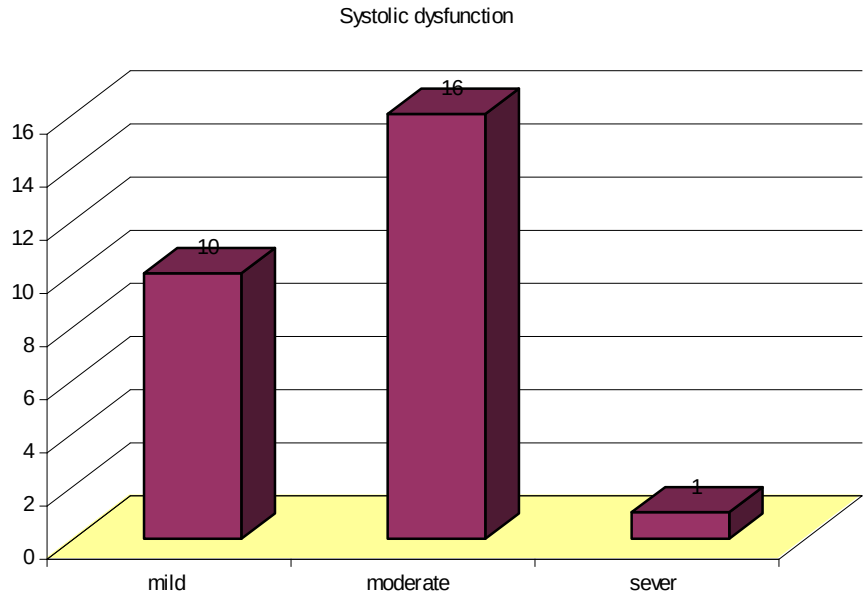

Figure (12): Distribution of left ventricular systolic dysfunction among the patients.

Table (7): Comparison of patients with and without systolic dysfunction as regard P-wave duration and dispersion.

	Patients without systolic dysfunction (n=23) (mean±SD)	**Patients with systolic dysfunction (n=27)** (mean±SD)	**P-value.**
P.max (msc)	112.5±16.15	119.6±12.0	0.081
P.min (msc)	56.4±13.3	58.59±10.43	0.523
PWD (msc)	56.1±16.6	61.41±14.58	0.237

In this table, there is a trend toward increase in P-wave duration and dispersion in patients with systolic dysfunction compared to those with normal systolic function, but the difference doesn't reach statistically significant value.

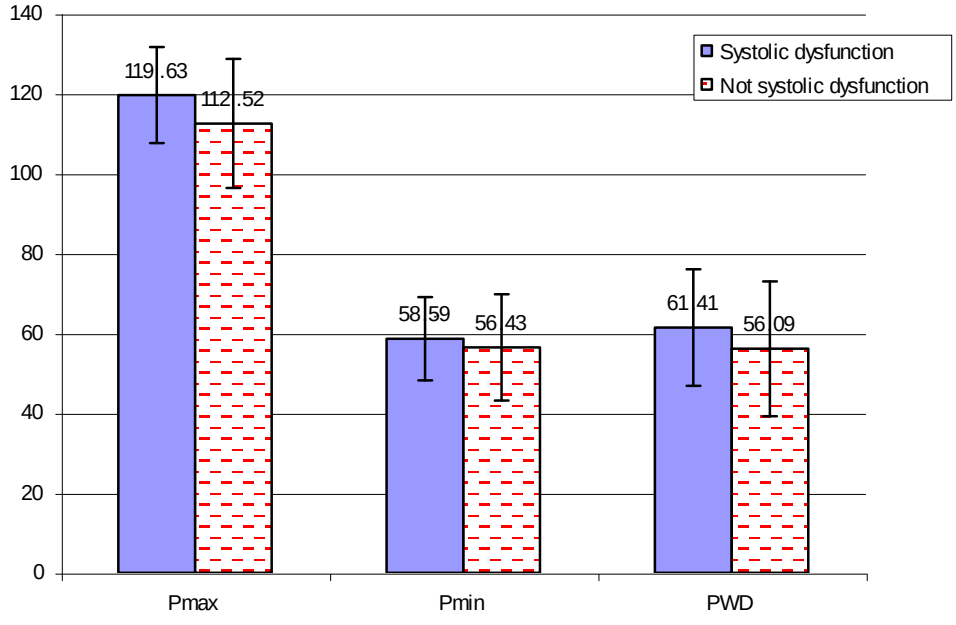

Figure (13): Mean of P wave duration (P max), (P min) and P wave dispersion (PWD) in patients with and without systolic dysfunction.

Table (8): Relationship between P wave duration and dispersion and grades of systolic dysfunction.

	Mild systolic dysfunction (n=10) (mean±SD)	**Moderate (n=16)** (mean±SD)	**Sever (n=1)** (mean±SD)	**P-value.**
Pmax (msc)	114±8.2	122.5±13.1	130.0±0.0	0.12
Pmin(msc)	54±5.2	61.1±12.2	65±0.0	0.41
PWD (msc)	61±4.1	61.4±17.2	65±0.0	0.7

This table shows that P wave duration and dispersion increase along with the increase in severity of systolic dysfunction, but the degree of increase doesn't reach significant value.

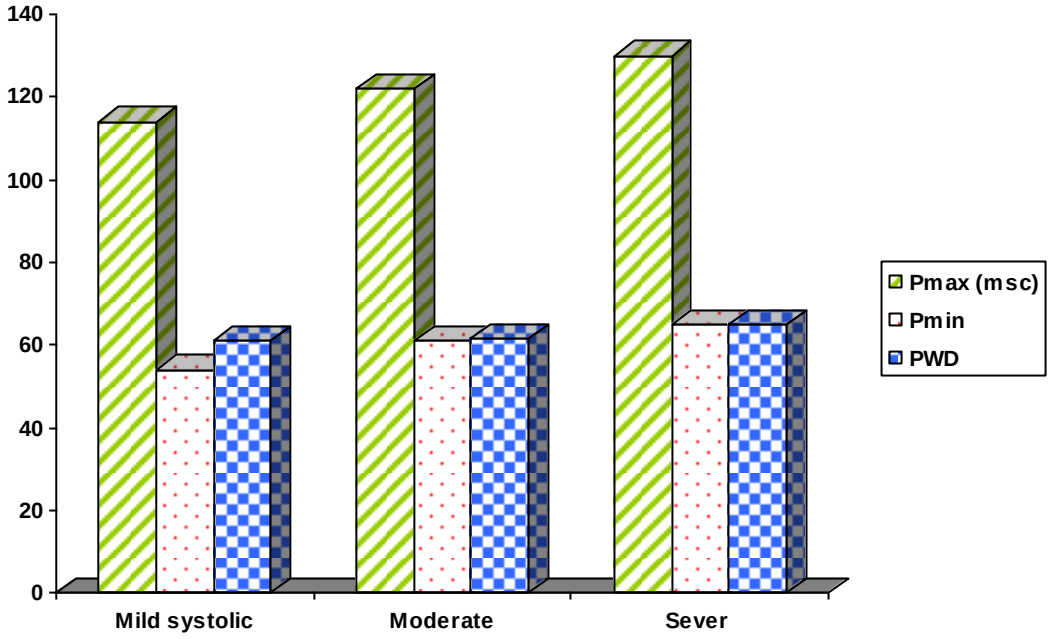

Figure (14): P wave duration and dispersion in different grades of systolic dysfunction.

Table (9): Comparison between P wave duration and P wave dispersion in patients with normal and with mild systolic dysfunction:

	Normal systolic function (n= (mean±SD)	**Mild systolic dysfunction (n=** (mean±SD)	**P-value**
Pmax (msc)	112.5±16.15	114±8.2	0.072
Pmin(msc)	56.4±13.3	54±5.2	0.410
PWD (msc)	56.1±16.6	61±4.1	0.247

This table shows that P.max and PWD increase in mild systolic dysfunction compared to that with normal systolic dysfunction, but the degree of increase doesn't reach significant value.

Table (10): Comparison between P wave duration and P wave dispersion in patients with normal and with moderate systolic dysfunction:

	Normal systolic function (n= (mean±SD)	**Moderate systolic dysfunction (n=16** (mean±SD)	**P-value.**
Pmax (msc)	112.5±16.15	122.5±13.1	0.172
Pmin (msc)	56.4±13.3	61.1±12.2	0.510
PWD (msc)	56.1±16.6	61.4±17.2	0.347

This table shows that P wave duration and dispersion increase along with the increase in severity of systolic dysfunction, but the degree of increase doesn't reach significant value.

Table (11): Comparison between P wave duration and P wave dispersion in patients with normal and with sever systolic dysfunction:

	Normal systolic function (n= (mean±SD)	**Sever systolic dysfunction (n=1)** (mean±SD)	**P-value.**
Pmax (msc)	112.5±16.15	130.0±0.00	0.122
Pmin (msc)	56.4±13.3	65±0.00	0.410
PWD (msc)	56.1±16.6	65±0.00	0.700

This table shows that P wave duration and dispersion increase along with the increase in severity of systolic dysfunction, but the degree of increase doesn't reach significant value.

Table (12): Distribution of patients according to the presence or absence of diastolic dysfunction.

	Patients (no&%)
Normal LV diastolic dysfunction.	**11 (22%)**
Diastolic dysfunction.	
All	39 (78%)
Grade I	15 (30%)
Grade II	18 (36%)
Grade III	6 (12%)

This table shows that forty percent of patients have diastolic dysfunction, 30% of them had gradei, 36% had grade ii and 12% of them had grade iii diastolic dysfunction.

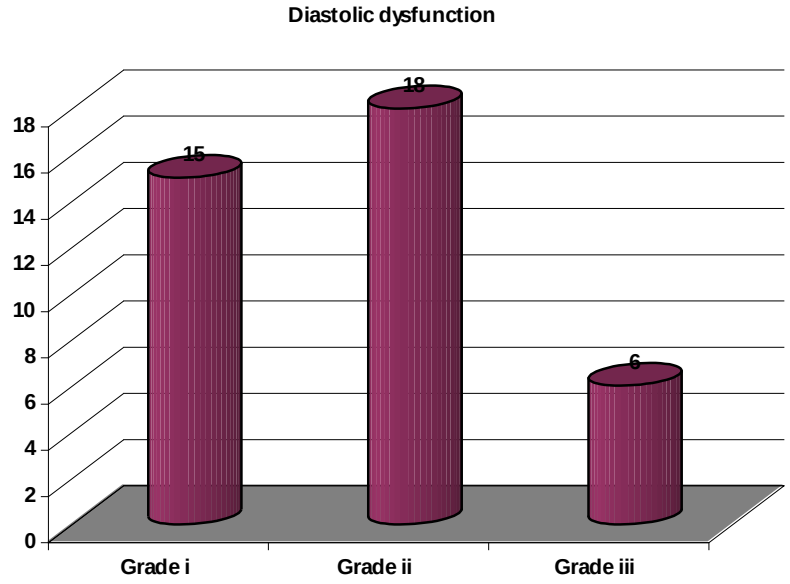

Figure (15): Distribution of left ventricular diastolic dysfunction among the patients.

Table (13): Comparison of P-wave duration and dispersion in patients with and without diastolic dysfunction.

	Patients without diastolic dysfunction (n=11) (mean±SD)	**Patients with diastolic dysfunction (n=39)** (mean±SD)	**P.value**
P-max (msc)	111.6±11.9	117.7±14.9	0.221
Pmin (msc)	57.3±13.3	57.7±11.5	0.918
PWD (msc)	54.4±16.6	60.3±15.5	0.277

In this table, there is an increase in P wave duration and dispersion in patients with diastolic dysfunction compared to those without, but those changes are not significant.

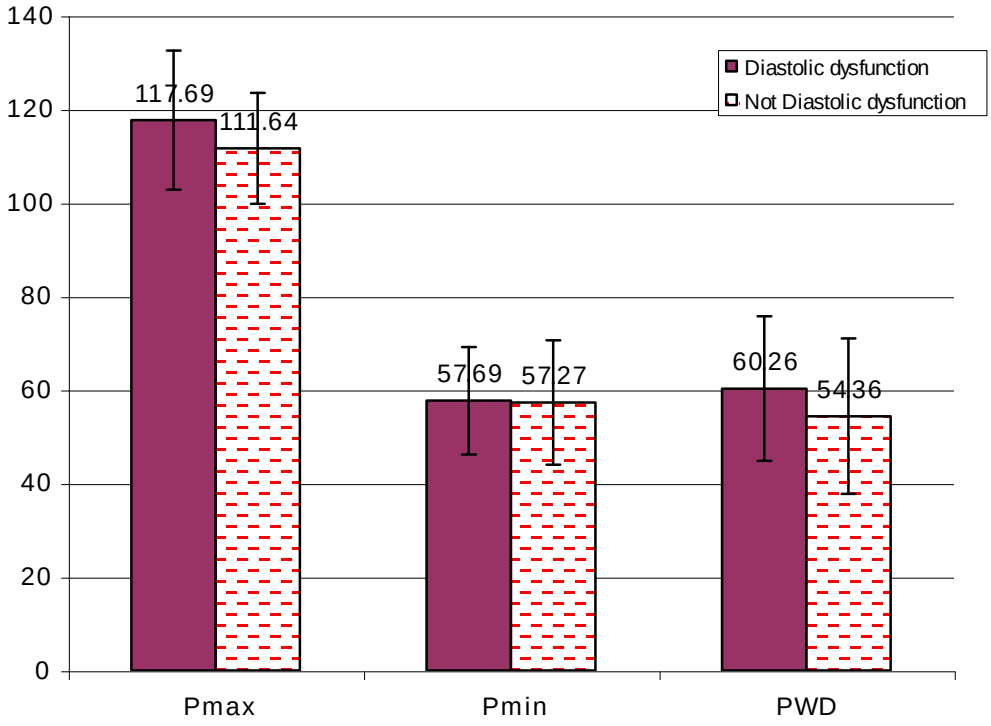

Figure (16): Mean values of P wave parameters in patients with and without diastolic dysfunction.

Table (14): Relationship between P wave duration and dispersion and grades of diastolic dysfunction.

	Grade I diastolic dysfunction (mean±SD)	**Grade II diastolic dysfunction** (mean±SD)	**Grade III diastolic dysfunction** (mean±SD)	**P –value**
P.max (msc)	122.8±20.8	114.6±8.96	114.2±8.0	0.204
P.min (msc)	61.8±11.5	56.4±11.7	51.3±7.5	0.287
PWD (msc)	61.0±20.9	58.8±11.4	62.8±11.6	0.682

This table shows that no significant difference in the mean values of P wave parameters among patients with different grades of diastolic dysfunction.

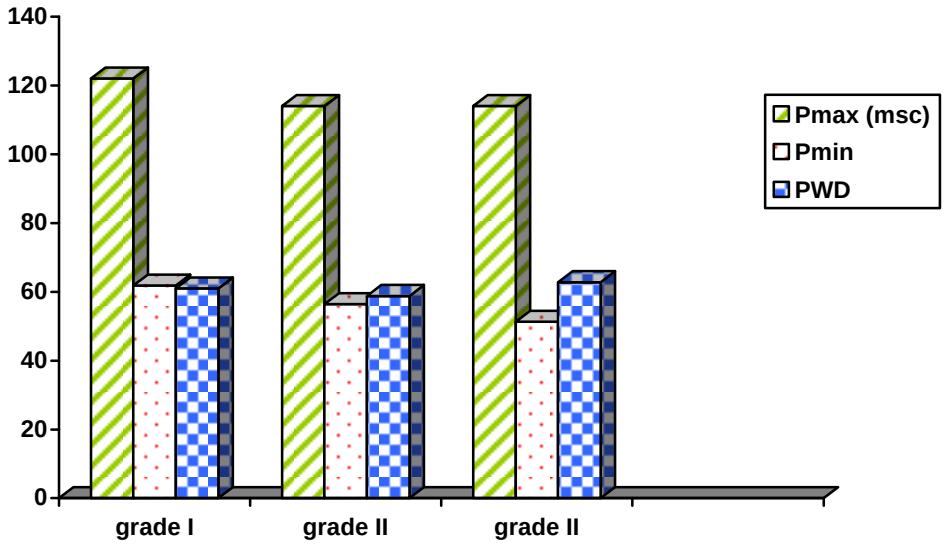

Figure (17): P wave duration and dispersion in different grades of diastolic dysfunction.

Table (15): Comparison between P wave duration and P wave dispersion in patients with normal and grade I diastolic dysfunction:

	Patients with normal diastolic function (n=11) (mean±SD)	P**atients with grade I diastolic dysfunction (n=2)** (mean±SD)	P value
P-max (msc)	111.6±11.9	122.8±20.8	0.321
Pmin (msc)	57.3±13.3	61.8±11.5	0.818
PWD (msc)	54.4±16.6	61.0±20.9	0.377

In this table, there is an increase in P wave duration and dispersion in patient with grade 1 diastolic dysfunction compared to those with normal diastolic dysfunction but these changes are not significant.

Table (16): Comparison between P wave duration and P wave dispersion in patients with normal and grade II diastolic dysfunction:

	Patients with normal diastolic function (n=11 (mean±SD)	**Patients with grade II diastolic dysfunction (n=2** (mean±SD)	**P value**
P-max (msc)	111.6±11.9	114.6±8.96	0.521
Pmin (msc)	57.3±13.3	56.4±11.7	0.618
PWD (msc)	54.4±16.6	58.8±11.4	0.477

In this table, there is not a significant relationship between P wave duration and dispersion and grades of diastolic dysfunction compared to those with normal diastolic dysfunction.

Table (17): Comparison between P wave duration and P wave dispersion in patients with normal and grade III diastolic dysfunction

	Patients with normal diastolic function (n=11 (mean±SD)	**Grade III diastolic dysfunction (n= 6)** (mean±SD)	**P.value**
P-max (msc)	111.6±11.9	114.2±8.0	0.214
Pmin (msc)	57.3±13.3	51.3±7.5	0.298
PWD (msc)	54.4±16.6	62.8±11.6	0.692

In this table, there is not a significant relationship between P wave duration and dispersion and grades of diastolic dysfunction compared to those with normal diastolic dysfunction.

Table (18): Correlation of echocardiographic data with P wave dispersion:

	PWD	
	r	**P**
EF	**-0.451**	**0.001**
Left atrium size	**0.688**	**< 0.001**
E/A ratio	**0.639**	**< 0.001**
DT	**-0.019**	**0.897**
Sm	**0.720**	**0.005**
EM	**-0.089**	**0.537**
Em/Am	**0.489**	**< 0.001**
E/Em	**0.317**	**0.025**

This table show that (EF), left atrial size, E/A ratio ,Em/Am ratio and E/Em ratio are highly correlated with P-wave dispersion.

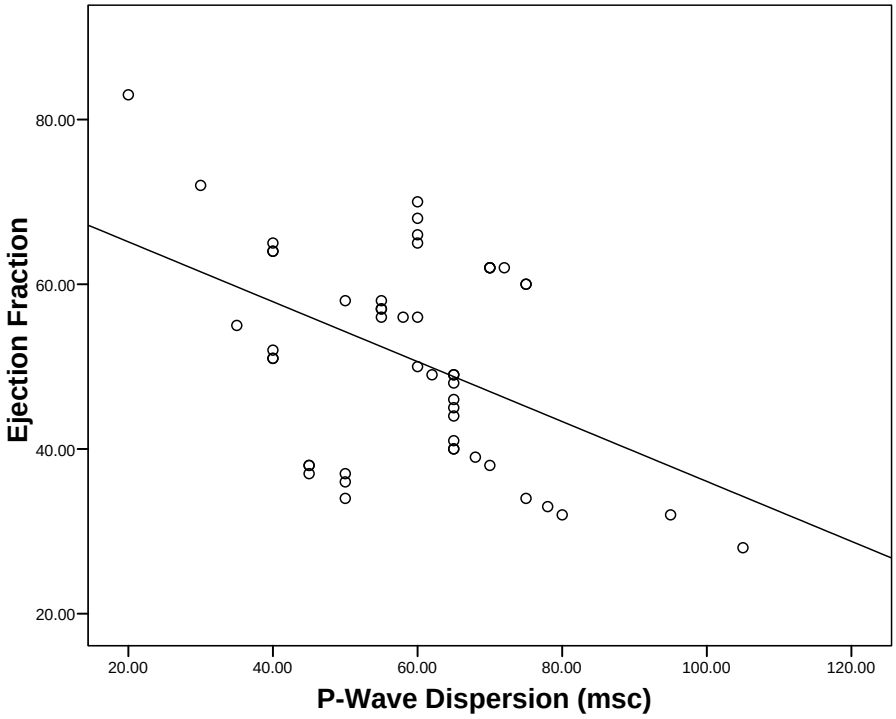

Figure (18): Correlation between PWD and ejection fraction (EF)

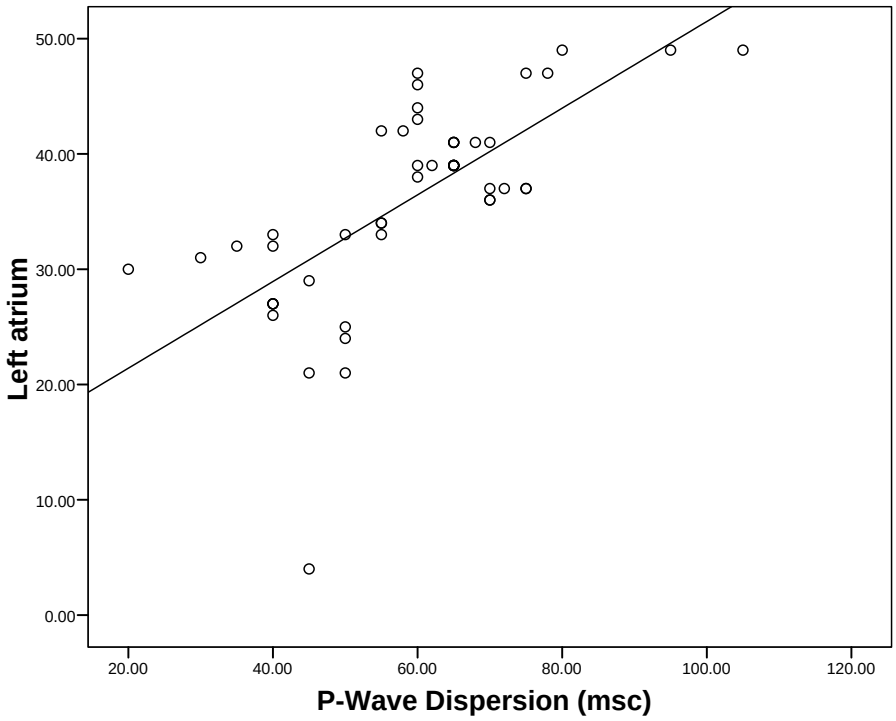

Figure (19): Correlation between PWD and left atrium size

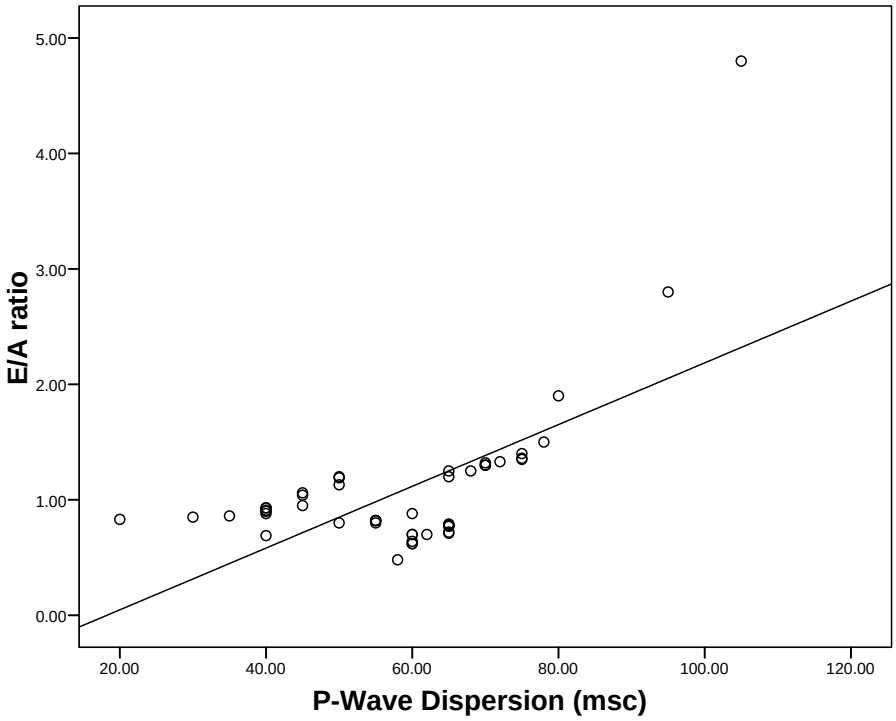

Figure (20): Correlation between PWD and E/A ratio

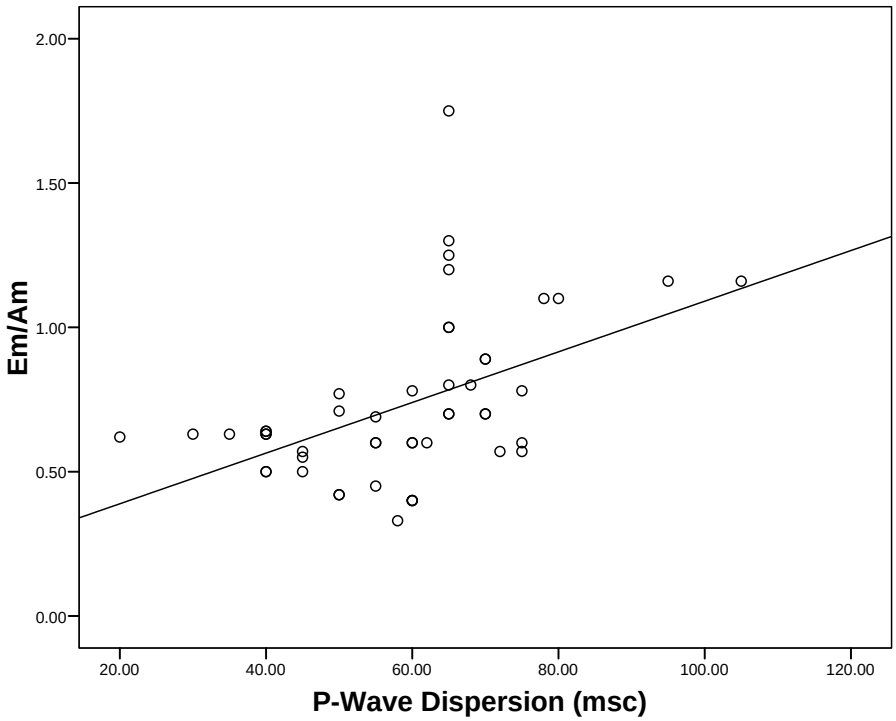

Figure (21): Correlation between PWD and Em/Am.

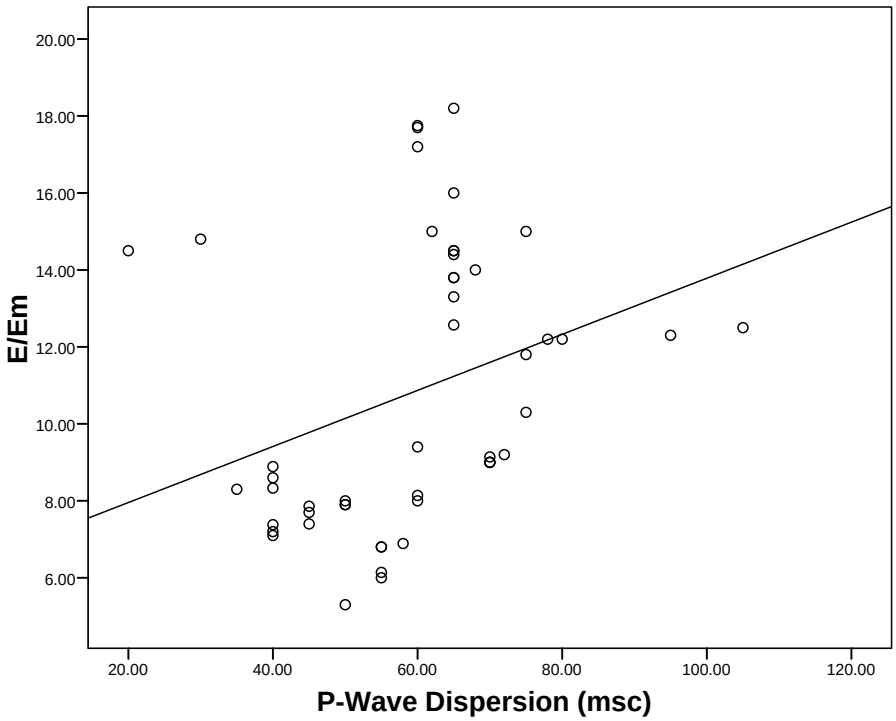

Figure (22): Correlation between PWD and E/Em.