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Correlation between P Wave Dispersion, QRS Duration & QT Dispersion in Hospital Events in Cases of Acute Coronary Syndrome

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Results

Table 1: Comparison between the Different Studied Groups According to Demographic Data

	Unstable Angina 20 Case		Successful Thrombolysis 20 Case		Failed Thrombolysis 20 Case		p
	No	%	No	%	No	%	
Sex							
Male	14	70.0	19	95.0	15	75.0	$MC_p = 0.124$
Female	6	30.0	1	5.0	5	25.0	
Age (years)							
Min. – Max.	39.0 – 75.0		30.0 – 73.0		47.0 – 70.0		$F_p = 0.937$
Mean ± SD	57.35 ± 9.87		57.20 ± 11.37		56.30 ± 8.24		
Median	56.50		60.0		52.0		

p: p value for comparing between the studied group

MC: Monte Carlo test

F: F test (ANOVA)

*: Statistically significant at $p \leq 0.05$

There was no significant difference between the gender of patients in the three groups of patients ($p > 0.05$), total number of males was 48, however in females was 12.

There was also no significant difference between the three age groups of patients ($p > 0.05$), mean of age was similar (57.3, 57.2 and 56.3 years) respectively.

Table 2: Comparison between the Different Studied Groups According to Medical History

	Unstable Angina		Successful Thrombolysis		Failed Thrombolysis		p
	No	**%**	**No**	**%**	**No**	**%**	
DM							
+ve	11	55.0	4	20.0	7	35.0	$\chi^2_p = 0.070$
-ve	9	45.0	16	80.0	13	65.0	
$\chi^2_p 1$			0.022*		0.204		
$^{FE}p_2$			0.015*				
Hypertension							
+ve	11	55.0	7	35.0	5	25.0	$\chi^2_p = 0.139$
-ve	9	45.0	13	65.0	15	75.0	
Heart disease			18	90.0	13	65.0	$MC_p = 0.201$
+ve	15	75.0	2	10.0	7	35.0	
-ve	5	25.0					
Smoking							
+ve	4	20.0	15	75.0	9	45.0	$\chi^2p = 0.002$*
-ve	16	80.0	5	25.0	11	55.0	
χ^2p_1			<0.001*		0.091		
χ^2p_2			0.053				
Cardiac enzymes							
+ve	0	0.0	20	100.0	20	100.0	χ^2_p <0.001*
-ve	20	100.0	0	0.0	0	0.0	
χ^2p_1			<0.001*		<0.001*		
p_2			-				
ECG changes							
Non significant change	8	40.0	0	0.0	0	0.0	
Positive change	12	60.0	20	100.0	20	100.0	MC_p <0.001*
FE_{p1}			0.003*		0.003*		
p_2			-				

P: p value for comparing between the studied group

p_1: p value for comparing between unstable angina with each other groups

p_2: p value for comparing between successful thrombolysis and failed thrombolysis

MC: Monte Carlo test

FE: Fisher Exact test

$\chi^2$2: Chi square test

*: Statistically significant at $p \leq 0.05$

This table shows that there was significant difference in risk factors between the studied groups as following: smoking is higher in the groups (Successful thrombolysis and failed thrombolysis) than the unstable angina group.

There was also significant ECG changes and Cardiac enzymes were elevated in the (Successful thrombolysis and failed thrombolysis) than the unstable angina group.

Table 3: Comparison between the Different Studied Groups according to P Wave Dispersion (PWD)

	Unstable Angina	Successful Thrombolysis	Failed Thrombolysis	p
PWD	**(n = 20)**	**(n = 20)**	**(n = 18)**	
Min. – Max.	20.0 – 60.0	20.0 – 60.0	20.0 – 60.0	
Mean ± SD	48.0 ± 13.61	47.0 ± 13.42	43.33 ± 15.72	$KW_p = 0.624$
Median	50.0	40.0	40.0	
MW_{p1}		0.787	0.357	
MW_{p2}		0.485		

p: p value for Kruskal Wallis test for comparing between the studied group

p_1 : p value for Mann Whitney test for comparing between unstable angina with each other groups

p_2 : p value for Mann Whitney test for comparing between successful thrombolysis and failed thrombolysis

*: Statistically significant at $p \leq 0.05$

This table shows that no difference in PWD between the three groups.

Table 4: Comparison between the Different Studied Groups according to QRS Duration

	Unstable Angina	Successful Thrombolysis	Failed Thrombolysis	p
QRS				
Min. – Max.	50.0 – 100.0	40.0 – 120.0	50.0 – 90.0	$F_p = 0.681$
Mean ± SD	73.50 ± 14.24	72.0 ± 17.95	76.0 ± 10.46	
Median	80.0	70.0	80.0	
Sch_{p1}		0.948	0.863	
Sch_{p2}		0.687		

P: p value for F test (ANOVA) for comparing between the studied group

p_1: p value for Post Hoc Test (Scheffe) for comparing between unstable angina with each other groups

p_2: p value for Post Hoc Test (Scheffe) for comparing between successful thrombolysis and failed thrombolysis

*: Statistically significant at $p \leq 0.05$

This table shows that there was no difference in duration of QRS between the three groups (P >0.05), QRS mean was ranged from 73.5 MS in patients with unstable angina, and 76 MS in patients with failed thrombolysis.

Table 5: Comparison between the Different Studied Groups according to QT Dispersion (QTD)

	Unstable Angina	Successful Thrombolysis	Failed Thrombolysis	p
QTD				
Min. – Max.	39.0 – 129.0	9.0 – 125.0	28.0 – 187.0	Fp = 0.025
Mean ± SD	83.50 ± 31.11	72.30 ± 31.47	101.0 ± 36.35	
Sch_{p1}		0.566	0.239	
Sch_{p2}		0.025		

P: p value for F test (ANOVA) for comparing between the studied group

p_1: p value for Post Hoc Test (Scheffe) for comparing between unstable angina with each other groups

p_2: p value for Post Hoc Test (Scheffe) for comparing between successful thrombolysis and failed thrombolysis

*: Statistically significant at $p \leq 0.05$

This table shows that there is significant difference in QTD between the three groups, it was longer in patients with failed thrombolysis therapy (101 m sec), than in other groups of patients, (72.3 msec) in patients with successful thrombolytic therapy, (83.5 m sec) in patients with unstable angina.

Table 6: Comparison between the Different Studied Groups according to ICU Length

	Unstable Angina		Successful Thrombolysis		Failed Thrombolysis		p
	No	%	No	%	No	%	
ICU length <3 days >3 days	 19 1	 95.0 5.0	 9 11	 45.0 55.0	 7 13	 35.0 65.0	χ^2_p <0.001*
χ^2_{p1}			0.001*		<0.001*		
χ^2_{p2}			0.519				
Min. – Max. Mean ± SD Median	1.0 – 4.0 2.45 ± 0.76 2.50		2.0 – 4.0 3.50 ± 0.61 4.0		2.0 – 5.0 3.60 ± 0.88 4.0		F_p <0.001*
Sch_{p1}			<0.001*		<0.001*		
Sch_{p2}			0.917				

P: p value for comparing between the studied groups

p_1: p value for comparing between unstable angina with each other groups

p_2: p value for comparing between successful thrombolysis and failed thrombolysis

F: F test (ANOVA)

Sch: Post Hoc Test (Scheffe)

χ^2: Chi square test

*: Statistically significant at $p \leq 0.05$

This table shows that there is a significant difference between the three groups ICU length of stay , patients with failed thrombolysis stayed more than 3 days in ICU, in comparison to the other groups.

Table 7: Comparison between the Different Studied Groups according to Complications

	Unstable Angina		Successful Thrombolysis		Failed Thrombolysis		MCp
	No	%	No	%	No	%	
Complications Absent Present	 20 0	 100.0 0.0	 20 0	 100.0 0.0	 13 7	 65.0 35.0	0.001*
FE_{p1}			-		0.008*		
FE_{p2}			0.008*				
Heart failure Cardiogenc Shock Accelerated junctiontial rythm AF Pulsless VT	0 0 0 0 0	0.0 0.0 0.0 0.0 0.0	0 0 0 0 0	0.0 0.0 0.0 0.0 0.0	2 2 1 1 1	10.0 10.0 5.0 5.0 5.0	-

P: p value for Monte Carlo test for comparing between the studied groups

p1: p value for Fisher Exact test for comparing between unstable angina with each other groups

p2: p value for Fisher Exact test for comparing between successful thrombolysis and failed thrombolysis

*: Statistically significant at $p \leq 0.05$

This table shows that the presence of listed complications was only in the failed thrombolysis group in comparison to the other two groups.

Table 8: Comparison between the Different Studied Groups according to Survival

	Unstable Angina		Successful Thrombolysis		Failed Thrombolysis		MC_p
	No	%	No	%	No	%	
Survival							
Survived	20	100.0	20	100.0	16	80.0	0.029*
Non survived	0	0.0	0	0.0	4	20.0	
FE_{p1}			-		0.106		
FE_{p2}			0.106				

P: p value for Monte Carlo test for comparing between the studied groups

p1: p value for Fisher Exact test for comparing between unstable angina with each other groups

p2: p value for Fisher Exact test for comparing between successful thrombolysis and failed thrombolysis

*: Statistically significant at $p \leq 0.05$

It was found that percent of survivors in unstable angina and patients with successful thrombolysis was 100% in comparison with 80% of failed thrmobolysis group, that was highly significant ($p < 0.001$*).

Table 9: Relation between P Wave Dispersion (PWD), QRS Duration, QT Dispersion (QTD) and Complications in failed thrombolysis group

	Complications		**p**
	Absent	**Present**	
PWD	**(n = 13)**	**(n = 7)**	
Min. – Max.	20.0 – 60.0	20.0 – 40.0	
Mean ± SD	46.15 ± 17.10	36.0 ± 8.94	MWp = 0.208
Median	60.0	40.0	
QRS	**(n = 13)**	**(n = 7)**	
Min. – Max.	50.0 – 90.0	80.0 – 80.0	
Mean ± SD	73.85 ± 12.61	80.0 ± 0.0	$t_p = 0.104$
Median	80.0	80.0	
QTD	(n = 13)	(n = 7)	
Min. – Max.	36.0 – 102.0	28.0 – 187.0	
Mean ± SD	83.15 ± 17.47	121.86 ± 51.68	$t_p = 0.022$*
Median	82.0	119.0	

P: p value for comparing between the studied groups

t: Student t-test

MW: Mann Whitney test

*: **Statistically significant at $p \leq 0.05$**

This table shows that there is no significant difference between the PWD, QRS duration and the presence of complications in failed thrombolysis group, however there is a significant difference between the QTD and the complications in the same group.

Table 10: Relation between QTD and Complications

Complications	QTD (Mean ± SD)	Anova	P value
▪ No Complications	79.9 ± 28.39	6.95	<0.001*
▪ Heart Failure	190.0 ± 00.0		
▪ Cardiogenic Shock	154 ± 00.0		
▪ AF	92.0 ± 00.0		
▪ JA	28.0 ± 0.00		
▪ Pulpless VT	187.0±0.0		

Highly significant= $p < 0.001$

There was a highly significant difference between QTD in relation to occurrence of each complications, the largest one was in heart failure (190 msec) and the smallest one was (28 msec) in Junctional arrhythmia.

Table 11: Relation between Survival and Complications in Failed Thrombolysis Group

	Complications				
	Absent (n = 13)		**Present (n = 7)**		**p**
	No	%	No	%	
Survival Survived Non survived	13 0	100.0 0.0	3 4	42.9 57.1	0.007*

P: p value for Fisher Exact test for comparing between the two studied groups

*: Statistically significant at $p \leq 0.05$

This table shows that non survived patients were 4 from 7 complicated patients (57.1%), their causes of death were (heart failure, cardiogenic shock, AF and pulseless VT), in comparison to the survived patients 3 from 7 complicated patients (42.9%), with a statistical difference <0.05.

Table 12: Relation between ICU Length and Complications in Failed Thrombolysis Group

	Complications				p
	Absent (n = 13)		Present (n = 7)		
	No	%	No	%	
ICU length <3 days >3 days	 7 6	 53.8 46.2	 0 7	 0.0 100.0	$FE_p = 0.044$*
Min. – Max. Mean ± SD Median	2.0 – 4.0 3.23 ± 0.83 3.0		4.0 – 5.0 4.29 ± 0.49 4.0		$t_p = 0.007$*

p: p value for comparing between the studied group

t: Student t-test

FE: Fisher Exact test

*: Statistically significant at $p \leq 0.05$

This table shows significant difference between complicated & non complicated patients regarding ICU stay, all complicated patients (100%) stayed more than 3 days in ICU while only 6 from 13 patients (46%) from complicated patients stayed more than 3 days.