RESULTS

Patients' demographic data:

This study included 50 patients admitted to Benha university hospital and the National Heart Institute in Cairo. The patients were divided into three groups, 20 patients in single vessel disease group, 12 patients in the two vessel disease group, and three vessel disease group of 18 patients. A group of 20 healthy age and sex matched subjects is used as control.

The single vessel group patients are 20, 15 males and 5 females. Their age ranged from 48 to 60 years (mean 54.05 ± 4.23), the heart rate ranged from 54 to 100 bpm (mean 73 ± 12.88), 8 (40%) of them are diabetic, 7 (35%) are hypertensive, 9 (45%) smokers, 8 (40%) with previous MI, 2 (10%) had PCI and none had CABG.

The two vessel group patients are 12, 11 males and 1 female. Their age ranged from 50 to 59 years (mean 52.42 ± 2.81), , the heart rate ranged from 56 to 100 bpm (mean 77.83 ±12.37), 9 (75%) patients are diabetic, 5 (41.6%) hypertensive, 8 (66.6%) smokers, 3 (25%) patients had previous MI, 2 (16.6) had PCI and 1 patient had CABG.

The three vessel group patients are 18, 13 males and 5 females. Their age ranged from 40 to 66 years (mean 56.06 ± 6.71), the heart rate ranged from 64 to 100 bpm (mean 82.83 ± 10.84), 11 (61.1%) patients are diabetic, 13 (72.22%) hypertensive, 10 (55.56%) smokers, 11 (61.11%) had previous MI, none of them had PCI and 1 patient had CABG.

There were no significant differences among the three groups for age, sex, diabetes mellitus, hypertension, smoking, heart rate, previous myocardial infarction, previous PCI or previous CABG.

The following table summarizes the patients' baseline characteristics:

	Single vessel (no.=20)	Two vessel (no.=12)	Three vessel (no.=18)	P value
Age	54.05 ± 4.23	52.42 ± 2.81	56.06 ± 6.71	> 0.05
Sex (male)	15 (75%)	11 (91.67%)	13 (72.22%)	> 0.05
Diabetes mellitus no. (%)	8 (40%)	9 (75%)	11 (61.11%)	> 0.05
Hypertension	7 (35%)	5 (41.67%)	13 (72.22%)	> 0.05
Heart rate	73 ± 12.88	77.83 ± 12.37	82.83 ± 10.84	> 0.05
Smoking no. (%)	9 (45%)	8 (66.67%)	10 (55.56%)	> 0.05
Previous MI	8 (40%)	3 (25%)	11 (61.11%)	> 0.05
Previous PCI	2 (10%)	2 (16.67%)	zero	> 0.05
Previous CABG no. (%)	zero	1 (8.33%)	1 (5.56%)	> 0.05

Table 5: patients' baseline criteria.

MI = myocardial infarction. **PCI** = percutanous coronary intervention. **CABG** = coronary artery bypass grafting.

Angiographic findings:

In the single vessel group, (No. = 20), there are 16 patients with a lesion in the LAD, 1 patient with a lesion in the CX, 2 patients had a lesion in the RCA and 1 patient with a lesion in an OM. The lesions were proximal in 16 patients including 1 totally occluding lesion in an LAD.

In the two vessel group, (No. = 12), there are 11 patients with LAD lesion, 3 patients with CX lesion, 8 patients with RCA lesion and 1 patient with OM lesion.

In the three vessel group, (No. = 18), there are 13 patients with LAD lesion, 15 patients with CX lesion, 18 patients with RCA lesion, 5 patients with diagonal branch lesion, and 3 patients with OM lesion.

The angiographic data of the three groups are summarized in *table 6*.

	Single vessel (No. =20)	Two vessel (No. =12)	Three vessel (No. = 18)
LMT	0	0	0
LAD	16	11	13
CX	1	3	15
RCA	2	8	18
Diagonal	0	0	5
OM	1	1	3

Table 6: patient's angiographic data.

LMT = left main trunk. **LAD** = left anterior descending artery. **CX** = circumflex artery. **RCA** = right coronary artery. **OM** = obtuse marginal branch.

QT parameters:

In the single vessel group the QTD ranged from 40 t0 100 ms (mean 70 ± 22.94), and the QTcD ranged from 44 to 104 ms (mean 75.85 ± 22.31).

In the two vessel group the QTD ranged from 40 to 120 ms (mean 83.33 ± 25.334), and the QTcD ranged from 45 to 146 (mean 99.08 ± 29.22).

The three vessel group the QTD ranged from 100 to 240 ms (mean 137.11 ± 32.6), and the QTcD ranged from 117 to 259 ms (mean 159.89 ± 33.56).

In the control group, the QTD ranged from 20 to 40 ms (mean 32 ± 10.05), and the QTcD ranged from 21 to 52 ms (mean 37.15 ± 12.84).

Correlation between QT parameters and angiographic findings:

Generally, according to this study, both the QT dispersion and the corrected QT dispersion varied significantly according to the number of affected coronary arteries.

The study showed a highly significant statistical difference among the three groups regarding both the absolute and the corrected QT dispersion.

This is represented in the following table and figure:

	Single vessel (No. = 20) Mean ± SD	Two vessel (No. = 12) Mean ± SD	Three vessel (No. = 18) Mean ± SD	P value
QTD (ms)	70 ± 22.94	83.33 ± 25.34	137.11 ± 32.6	< 0.001
QTcD (ms)	75.85 ± 22.31	99.08 ± 29.22	159.89 ± 33.56	< 0.001

Table 7: mean QTD/QTcD values in the three patient goups.

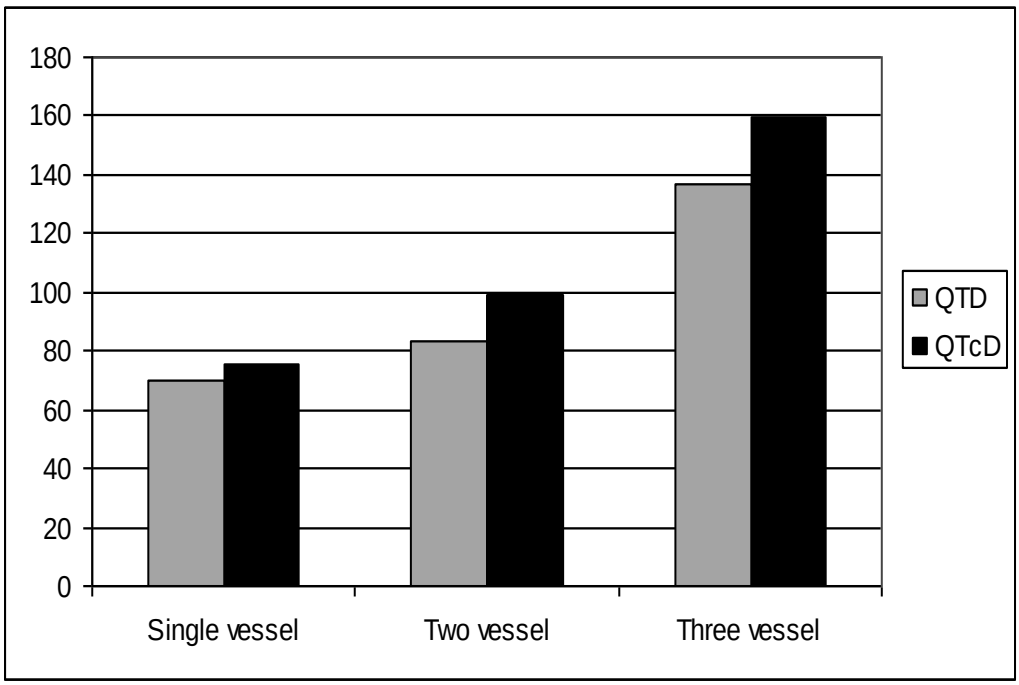

Figure 7: Mean values of QTD and QTcD in the single, two, and three vessel groups.

There was a highly significant statistical difference in both the absolute and the corrected QT dispersion between the single vessel group and the control group. This is shown in the following table and figure:

	Single vessel (No. = 20) Mean ± SD	Control (No. = 20) Mean ± SD	P value
QTD (ms)	70 ± 22.94	32 ±10.05	< 0.001
QTcD (ms)	75.85 ± 22.31	37.15 ±12.84	< 0.001

Table 8: mean QTD/QTcD values in the single vessel group & the control group.

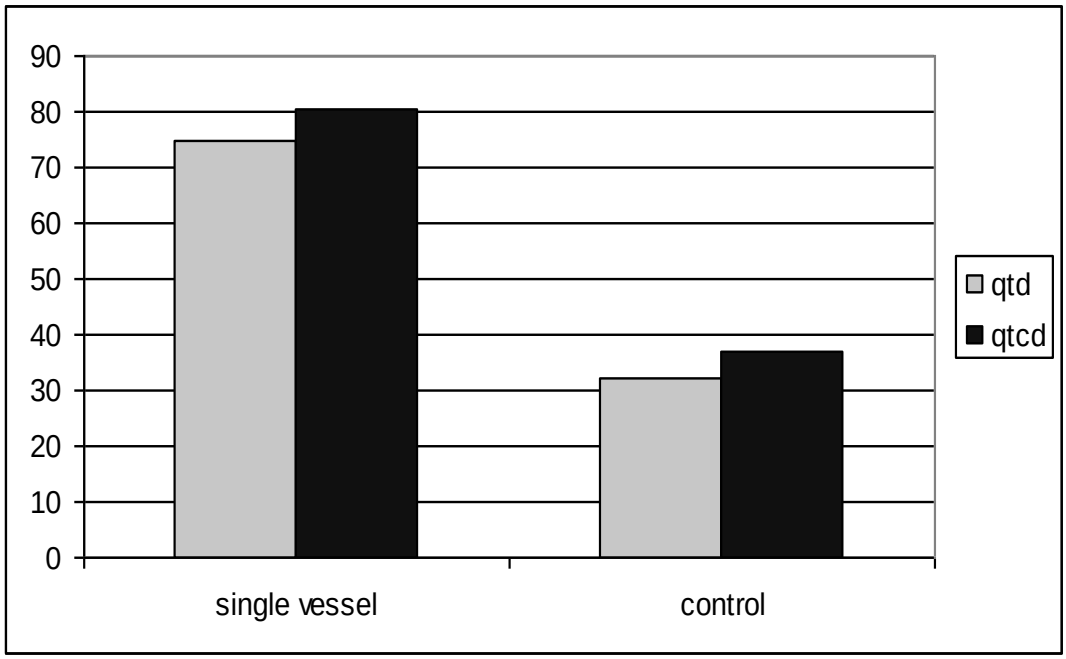

Figure 8: Mean values of QTD and QTcD in the single vessel group and the control group

The results also showed a statistically significant difference in the QT dispersion, and highly significant difference in the corrected QT dispersion among the subgroup of hypertensive patients. This is shown in the following table and figure:

	Single vessel (No. = 20) Mean ± SD	Two vessel (No. = 12) Mean ± SD	Three vessel (No. =18) Mean ± SD	P value
QTD (ms)	80 ± 20	88 ± 30.33	141.54 ± 36.02	< 0.05
QTcD (ms	87.14 ± 20.32	104.6 ± 36.54	165.92 ± 34.56	< 0.001

Table 9: mean QTD/QTcD values in the three groups in the hypertensive subgroup

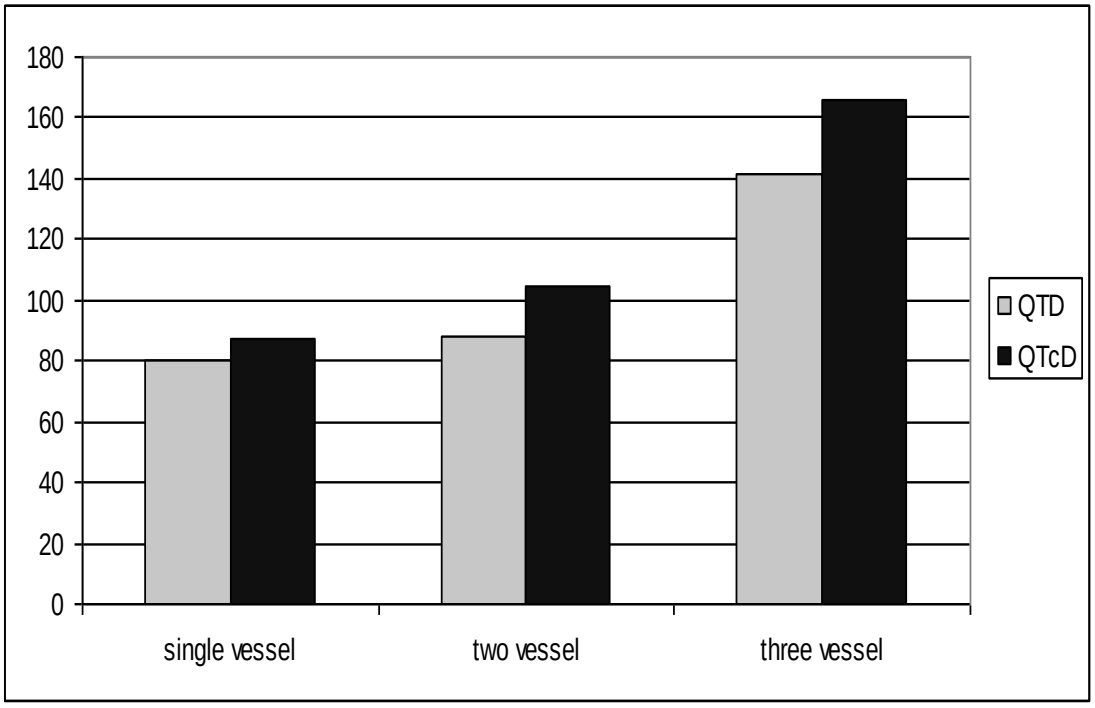

Figure 9: Mean values of QTD and QTcD in the three groups among the subgroup of hypertensives.

The results also showed a highly significant statistical difference in both the absolute and the corrected QT dispersion in the three groups among the diabetic subgroup. This is shown in the following table and diagram:

	Single vessel (No. = 20) Mean ± SD	Two vessel (No. = 12) Mean ± SD	Three vessel (No. = 18) Mean ± SD	P value
QTD (ms)	60 ± 23.9	88.89 ± 24.72	145.45 ± 36.97	< 0.001
QTcD (ms)	66.13 ± 24.49	104.56 ± 27.8	171.27 ± 35.26	< 0.001

Table 10: mean QTD/QTcD values in the three groups in the diabetic subgroup.

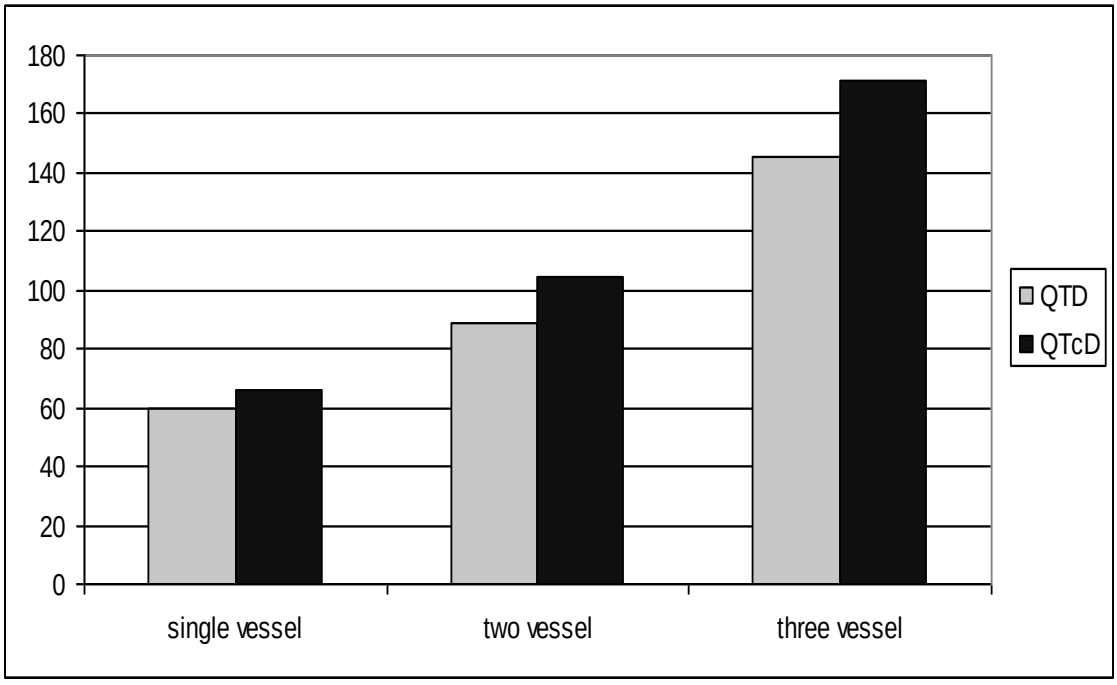

Figure 10: mean values of QTD and QTcD in the three groups among the diabetic subgroup.

The results also showed a highly significant difference in both QTD and QTcD in the three groups among the subgroup of smokers. The following table and figure illustrate this finding:

	Single vessel (No. = 20) Mean ± SD	Two vessel (No. = 12) Mean ± SD	Three vessel (No. =18) Mean ± SD	P value
QTD (ms)	68.89 ± 22.6	82.5 ± 31.05	130 ± 16.99	< 0.001
QTcD (ms)	77.44 ± 21.48	94.88 ± 34.42	153.8 ± 19.69	< 0.001

Table 11: mean QTD/QTcD values in the three groups in the subgroup of smokers.

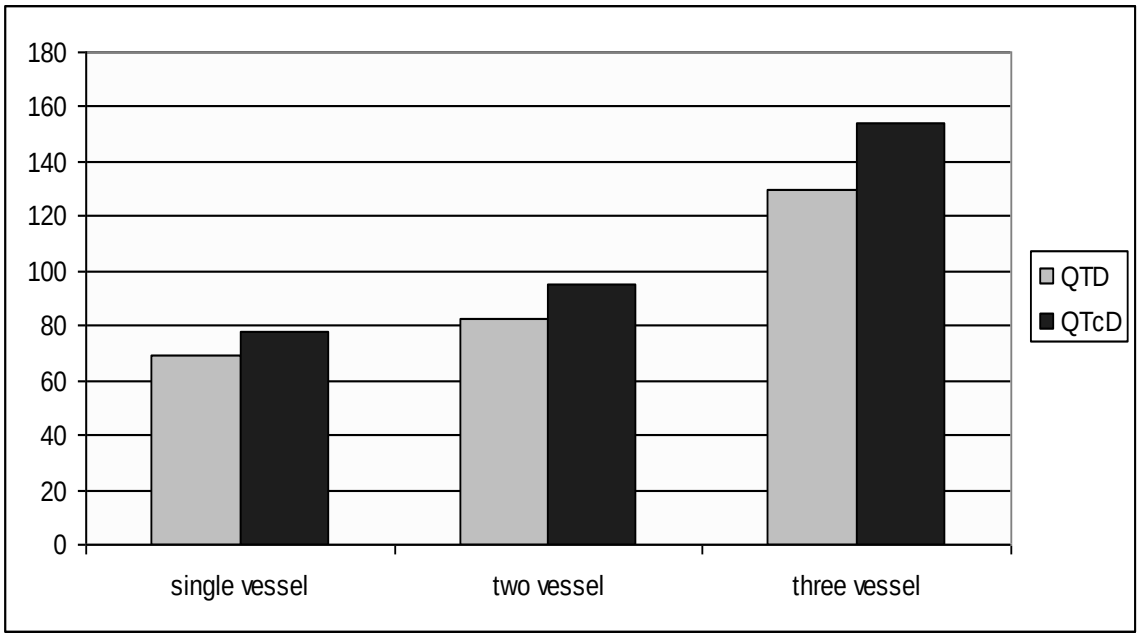

Figure 11: Mean QTD and QTcD in the three groups among the subgroup of smokers.

A further important finding regarding the single vessel group is the direct relationship between the lesion localization and both the QT dispersion and the corrected QT dispersion. In other words proximal lesions produced more dispersion in both QT and corrected QT intervals than more distal lesions did.

The following table and figure illustrate this finding:

	Proximal	Non proximal	P value
QTD (ms)	21.29 ± 75	50 ± 20	< 0.05
QTcD (ms)	80.25 ± 19.83	58.25 ± 25.86	< 0.05

Table 12: mean QTD/QTcD values in the single vessel group in the proximal & non proximal lesion subgroups.

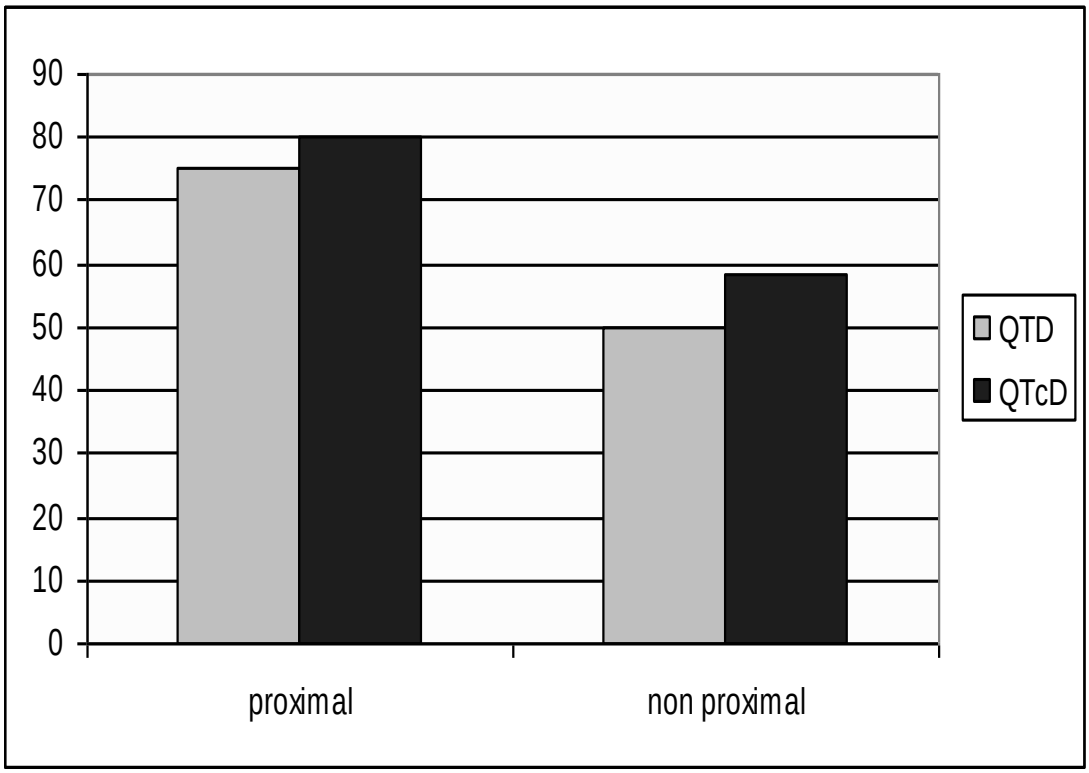

Figure 12: comparison between QTD/QTcD values in patients with proximal lesions and those with non proximal lesions in the single vessel group.

The following diagram shows the QTD/QTcD values in the control group in relation to the patient groups.

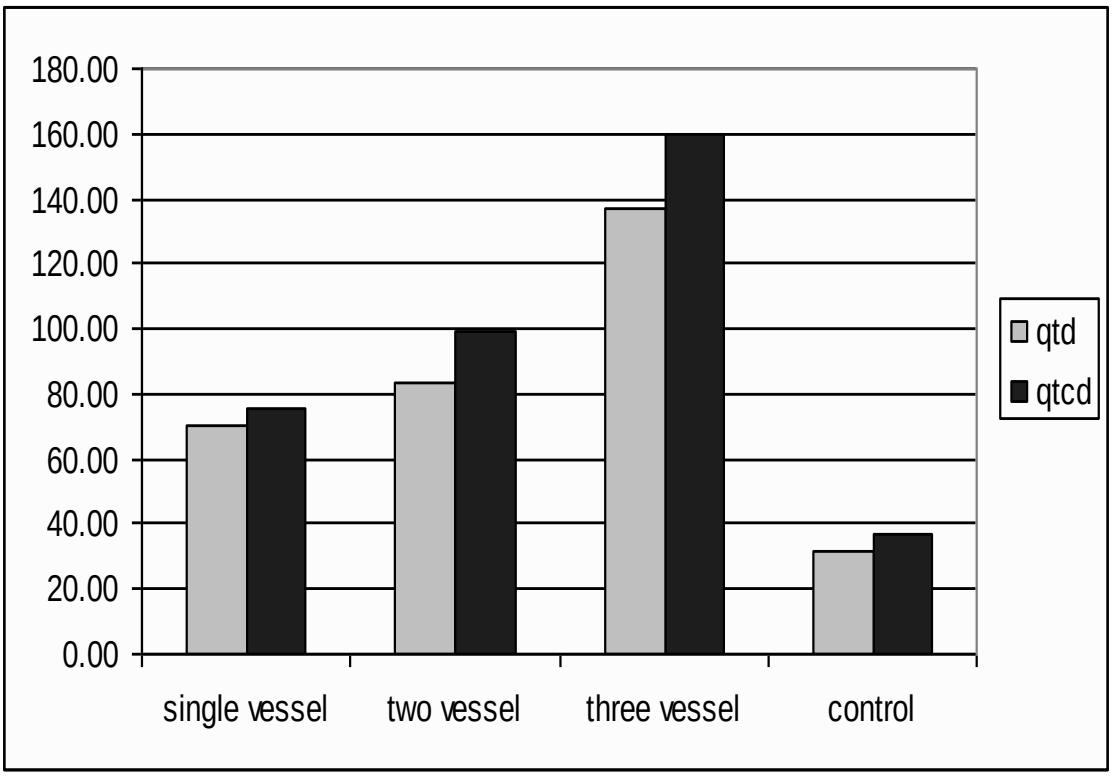

Figure 13: QTD and QTcD in the control group in comparison with the patients groups