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The Impact of Transradial versus Transfemoral Approach for Percutaneous Coronary Intervention on the Outcome of Patients Presenting with Acute Coronary Syndrome

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ABSTRACT

Background: the transfemoral approach (TFA) has been until presently the main-stay for arterial access PCI in the setting of acute STEMI, while the transradial approach (TRA) is gaining ground in elective as well as primary procedures.

Objectives: to assess the impact of transradial versus transfemoral approach for PCI on the outcome of patients presenting with acute coronary syndrome.

Patients and Methods: prospective study was conducted on 100 patients presenting to Ain Shams University Hospitals Coronary Care Unit (CCU) with recent onset acute coronary syndrome (whether unstable angina (UA)/non–ST-segment-elevation MI (NSTEMI) or ST-segment-elevation MI (STEMI)) undergoing revascularization via percutaneous coronary intervention (PCI). Patients were randomized into 2 equal groups, for the first group PCI was performed via TFA while for the second group via TRA.

Results: our study found that, with TRA we get less bleeding, less local vascular complications [8 (16%) vs 2 (4%), p=0.045] & less amount of dye used (169.60 ± 21.28 versus 187.00 ± 37.65 ml, p=0.006) without significant increase in fluoroscopy time (10.86 ±4.88 versus 9.76 ±4.74 mins, p=0.256) or radiation exposure. Although there was no significant difference in mortality and morbidity, TRA offers the patient a more simple procedure with less hospital stay (3.4 ±0.948 versus 3.86 ±0.808 days, p<0.01).

Conclusion: radial artery access is a safe and effective approach for management of ACS. If performed by experienced operators, TRA should be the standard access in managing ACS specifically in STEMI.

Keywords: Acute coronary syndrome, transfemoral approach, transradial approach.

INTRODUCTION

Acute coronary syndromes (ACS) with and without ST-segment elevation are most commonly caused by rupture of an atherosclerotic plaque, leading to thrombin generation, platelet activation, and thrombus formation.[1]

Although there have been improvements in outcome in recent years, these patients remain at high risk for ischemic events, both early during the initial hospitalization and long term.[2]

In patients with ACS, major bleeding is as common as recurrent myocardial infarction and occurs in about 5% of patients. A substantial proportion of the bleeding occurs at the vascular access site.[3,4]

More recently, there has been increasing awareness that bleeding is associated with an increased risk of adverse outcomes, including MI, stroke, and death.[5]

In 1948, Radner[6] first described transradial catheterisation using radial artery cut-down. In 1989, Campeau[8] revisited Radner's idea and reported on percutaneous entry into the distal radial artery for selective coronary angiography in 100 patients.[7,8]

The main complications of femoral artery access are hematoma, arteriovenous fistula, arterial pseudoaneurysm, and retroperitoneal hemorrhage. These complications are responsible for most of the bleeding that occurs in invasive procedures, especially in ACS and they are influenced by anatomic features, obesity, and puncture technique.[9]

The transfemoral approach (TFA) has been until presently the main-stay for arterial access percutaneous coronary intervention (PCI) in the setting of acute STEMI, while the transradial approach (TRA) is gaining ground in elective as well as primary procedures.[10]

The current study aimed to assess the impact of transradial versus transfemoral approach for PCI on the outcome of patients presenting with acute coronary syndrome.

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PATIENTS AND METHODS

This study was conducted on 100 patients presenting to Ain Shams University Hospitals Coronary Care Unit (CCU) with recent onset acute coronary syndrome (whether unstable angina (UA)/non–ST-segment-elevation MI (NSTEMI) or ST-segment-elevation MI (STEMI)) undergoing revascularization via PCI in the period from December 2013 till December 2015.

Patients were randomized into 2 equal groups, for the first group PCI was performed via transfemoral approach (TFA) while for the second group via transradial approach (TRA).

Acute coronary syndromes are divided into:[11,12]

1- STEMI was defined as acute chest pain and persistent (>20 min) ST-segment elevation.

2- NSTEACS (Non-ST elevation acute coronary syndrome) was defined as acute chest pain but no persistent ST-segment elevation. ECG changes may include transient ST-segment elevation, persistent or transient ST-segment depression, T-wave inversion, flat T waves or pseudo-normalization of T waves or the ECG may be normal.

NSTEACS patients were further classified into NSTEMI (elevated cardiac biomarkers) and UA (no elevation of cardiac biomarkers).

Patients with cardiogenic shock or resuscitated from cardiac arrest, history of CABG or chronic kidney disease were excluded from the study.

Approval of Ain Shams University Ethical Committee was obtained and informed consent was obtained from all patients.

Coronary angiography and intervention procedural details were obtained in both groups including the site of culprit vessel stenosis or occlusion, presence of non-culprit diseased vessels, presence or absence of angiographic thrombus and its TIMI thrombus grade, TIMI flow prior to- and after procedure, MBG scoring, and other details including type, length and diameter of stent used, balloon predilatation, thrombus aspiration, use of GP IIb/IIIa inhibitors, and procedural complications.

Also some procedural details including pain-to-door (PTD) time, door-to-needle (DTN) time, door-to-balloon (DTB) time (for STEMI patients only), fluoroscopy time, amount of dye used, and access site crossover.

All patients were followed up during their in-hospital stay for major adverse cardiac events (MACE), cerebrovascular stroke, major bleeding not related to access site as intracranial hemorrhage, access site complications within 48 hours after PCI using Duplex including the presence of local hematoma, retroperitoneal hematoma, pseudo-aneurysm, arterial occlusion with and without ischemia, major bleeding and the duration of hospital stay in days.

Statistics

Data were collected, tabulated and all the results were subjected to adequate statistical analysis.

i. Descriptive statistics:

Mean ± standard deviation (SD) for parametric numerical data, while frequency and percentage (%) for non-numerical data.

ii. Analytical statistics:

Student t-**test** was used to assess the statistical significance of the difference between two study group means. Also, chi-square test was used to assess the statistical significance of the difference between the study groups of non-numerical data.

P-value: level of significance: The confidence interval was set to 95%. So the p-value was considered significant as the following: P >0.05=Non significant (NS), P < 0.05=Significant (S), and P <0.01=Highly significant (HS).

RESULTS

The mean age of the studied patients was 55.56 ±8.4 years. Most of our studied patients were hypertensive 68 (68%), males 90 (90%), 63 patients (63%) had STEMI, 32 (32%) had NSTEMI, while 5 (5%) had UA (Table 1).

There was no statistically significant difference between both groups regarding baseline patient characteristics but there was a significantly higher number of patients with NSTEMI in the radial group [26 (52%) versus 6 (12%)], and a higher number of patients with STEMI in the femoral group [42 (84%) versus 21 (42%)] ($p < 0.0001$) (Tables 2,3).

There was a statistically highly significant difference ($p=0.008$) in the mean CRUSADE score between both groups, being higher in the radial group (32.24 ±15.86 versus 24.28 ±13.67) (Table 4).

There was a significantly higher ($p=0.025$) use of GP IIb/IIIa inhibitors in the femoral group [9 (18%) versus 2 (4%)], but no statistically significant difference in the use of thrombus aspiration, type of stent, stent diameter or stent length or access site crossover in both groups. There was a significantly

lower DTN ($p < 0.05$) and DTB ($p=0.04$) times (STEMI patients only) in the radial group (36.67 ±9.03 versus 43.90 ±20.05 and 42.67 ± 9.52 versus 50.57 ± 20.31, respectively) (Table 5). There was a significantly lower ($p=0.006$) amount of dye used in the radial group (169.60 ± 21.28 versus 187.00 ± 37.65), but no statistically significant difference in PTD time or fluoroscopy time in both groups.

There was a significantly lower ($p <0.01$) duration of hospital stay in the radial group (3.4 ±0.948 days versus 3.86 ±0.808 days), but no statistically significant difference regarding mortality in both groups. There were significantly higher ($p=0.045$) local hematomas in the femoral group (8 (16%) vs 2 (4%)), 6 out of the 8 patients (75%) in the femoral group & 1 out of the 2 patients (50%) in the radial group received GP IIb/IIIa inhibitors. Radial artery occlusion without ischemia (detected by radial artery Doppler) occurred in 3 patients (6%) but there was no statistically significant difference from the femoral group (Table 6).

DISCUSSION

Compared to the femoral artery, the radial artery is more superficial and has a smaller caliber. Radial access is therefore technically more demanding, but makes access site haemostasis more predictable. [13]

Previous studies have come to differing conclusions about the role of radial access in reducing adverse outcomes in patients with acute coronary syndrome undergoing catheterisation or percutaneous coronary intervention. [4,14]

Whether avoiding access site bleeding and vascular complications by the use of routine transradial intervention improves outcomes in largely unselected patients with acute coronary syndrome undergoing invasive management remains unclear.[4]

Most of the study population were males. The most common risk factor was hypertension affecting 68% of patients; this is consistent with studies done by ***Mann et al.*** [15], ***Hou et al.*** [16], ***Mehta et al.*** [17], ***Romagnoli et al.*** [14] *and* ***Valgimigli et al.*** [18] where most of the studies populations were also hypertensive males.

The LAD was the most common culprit vessel in our study in both groups (46% in TRA and 54% in TFA), which is similar to ***Valgimigli et al.*** [18] and the **Chodor *et al.*** [19]

There was a statistically significant difference in TIMI flow before PCI with grade 0 being higher in the femoral group [35 (70%) versus 21 (42%), $p <0.0001$] and grade 3 being higher in the radial group [27 (54%) versus 3 (6%), $p <0.0001$].

A randomized multicenter superiority trial done by ***Valgimigli et al.*** [18] randomly assigned 8404 patients with acute coronary syndrome, with or without ST-segment elevation to radial (4197) or femoral (4207) access for coronary angiography and PCI, there was no statistical difference between TIMI flow 0 and 3 [76 (1.8%) vs 71 (1.7%), $p=0.76$ and 4075 (95.7%) vs 4028 (95.9%), $p=0.64$ respectively], which was not concordant with the current study and this is probably due to the larger number of patients with STEMI in the TFA group than the TRA group in our study.

Post-procedural TIMI flow was 3 in most of the cases in our study (TRA vs TFA = 96% vs 90%) with no statistical difference between both groups and this is concordant with ***Valgimigli et al.*** [18],***Valgimigli et al.*** [13], ***Hou et al.*** [16], the **Chodor *et al.*** [19] and ***Baklanov et al.*** [20].

In the current study we used thrombus aspiration in only 20% of the patients in each group which is similar to ***Valgimigli et al.*** [18] but less than ***Romagnoli et al.*** [14] most probably due to the larger number of patients with STEMI in that study as it compared TRA vs TFA in STEMI patients only.

DTN and DTB times in STEMI patients in the current study were significantly lower in the TRA group (36.67 ±9.03 versus 43.90 ±20.05 & 42.67 ± 9.52 versus 50.57 ± 20.31 mins, respectively). This was not concordant with the RIFLE-STEACS study, which was a multicenter, randomized, parallel-group studywhere patients with STEMI undergoing primary/rescue PCI were randomized to the radial (500) or femoral (501) approach at 4 high-volume centers, and didn't show a significant difference (60 in TRA vs 53 mins in TFA) and this is probably due to the fewer number of patients and also the fewer number of patients with STEMI in the TRA group in our study.[14]

This was also not quite similar to a study done by ***Deftereos et al.*** [10] which included 98 patients, 65 procedures (66.3%) were completed via TRA, whereas the remaining 33 procedures (33.7%) used TFA, it showed no significant difference in DTB & DTN times in both groups (57 ± 19 vs. 54 ± 15 mins, $p >0.05$ & 48 ±15 vs 46 ±12 mins, $p >0.05$ respectively).

Mehta et al. [17] compared efficacy and bleeding outcomes in patients randomized to radial versus

femoral access in **Jolly *et al.*** [4] recorded that RIVAL (Radial Vs femoral access for coronary intervention) trial (n=7,021) separately in those with STEMI (n= 1,958) and NSTEACS (n=5,063) among STEMI patients, showed no significant difference in DTB time in both groups (85 (54-175) in TRA vs 85 (50-160) mins in TFA, p=0.2097) and this was not concordant with our study, but may also be explained by the fewer number of STEMI patients in our study.

Also this was not concordant with the **Chodor *et al.*** [19] in which 100 patients with STEMI qualified for PCI were randomly assigned to TRA (n=50) and TFA (n=50), where the DTN & DTB times were significantly lower in the TFA group (44.4 ±23.1 vs 53.7 ±21.9 mins, p=0.04 & 64.6±26.9 vs 76.9±25.9 mins, p=0.02, respectively) despite similar number of patients to our study in the TFA group but this may be due to differences in the operators' experience and less patients with STEMI in the TRA group in the current study.

In the present study there was a lower amount of dye used in the TRA vs TFA group (169.60 ± 21.28 versus 187.00 ± 37.65 ml, p = 0.006) which is similar to ***Baklanov et al.*** [20] (180 vs 185 ml, p <0.0001) despite the fewer number of STEMI patients in our study.

But this was not concordant with the **Chodor *et al.*** [19] where there was higher amount of dye used in the TRA group but was not statistically significant (198.7±45.7 vs 197.7±72.0 ml, p >0.05) despite the same number of patients where there was no statistical difference but this may be due to different lesion characteristics including types and complexities eg: tortuosity, difficult angles, difficult cannulation as 40% of the patients in that study had the RCA as a culprit vessel.

This was also not concordant with the **Jolly *et al.***[4] and ***Mehta et al.*** [17] where there was no significant difference in the amount of dye used probably due to the larger number of patients in those studies.

Although there was longer fluoroscopy time in the TRA group in our study but there was no statistical difference in both groups (10.86 ±4.88 vs 9.76 ±4.74, p =0.256) which is concordant with the **Chodor *et al.*** [19]

This was also similar to a comparative studydone by ***Hou et al.*** [16] where 200 Chinese patients with STEMI were randomly divided into TRA group & TFA group, the fluoroscopy time was also longer in the TRA group but not statistically significant (11.8 ±2.0 vs 11.4 ±1.8 mins, p=0.14).

Surprisingly in the study done by ***Deftereos et al.*** [10] there was a longer fluoroscopy time in the TFA group but not statistically significant (22 ±10 vs 20 ±9 mins, p >0.05).

But that was not concordant with studies done by ***Baklanov et al.*** [20], ***Mehta et al.*** [17], and the **Jolly *et al.***[4] where the fluoroscopy time was significantly longer in the TRA group and this is probably due to the larger number of patients in those studies and also the time needed for cannulation in the TRA is usually more but maybe wasn't quite apparent in our study due to the fewer number of patients.

In the current study there was no difference in the access-site crossover in both groups (1 (2%) vs 1 (2%), p=0.368) and this is similar to ***Hou et al.*** [16] where there was no statistically significant difference although it was higher in the TRA group (4 (4%) vs 0 (0%), p=0.13).

This was also similar to the RADIAL-AMI trial which is a multicenter pilot trial, 50 patients with MI requiring either primary or rescue PCI were randomized to radial or femoral access, which showed no statistically significant difference in both groups(1 (4%) in TRA vs 0 (0%) in TFA, p > 0.05).[21]

This was not present in the study done by ***Romagnoli et al.*** [14] and the **Jolly *et al.***[4] where the access-site crossover was significantly more in the TRA group than the TFA group (30 (6%) vs 5 (1%) & 265 (7·6%) vs 70 (2·0%), p <0.0001 respectively), this most probably is due to the larger number of patients in those studies.

No-reflow occurred in only 2 patients in the TFA group in the current study but with no significant difference from the TRA group (2 (4%) vs 0 (0%), p= 0.153). This was concordant with the **Jolly *et al.***[4], which is a randomized, parallel group, multicentre trial where 7021 patients were enrolled from 158 hospitals in 32 countries, 3507 patients were randomly assigned to radial access and 3514 to femoral access, which showed that no-reflow was also higher in the TFA group but with no statistically significant difference (31 (1.3%) vs 21 (0·9%), p=0.19).

In the current study there was no significant difference regarding mortality in both groups which is consistent with results from the **Jolly *et al.***[4] & **Chodor *et al.*** [19] and ***Hou et al.*** [16], but not consistent with the studies done ***Mehta et al.*** [17], ***Valgimigli et al.***

[13] *and* ***Valgimigli et al.*** [18] where there was a significant reduction of mortality in the TFA group and this may be due to the fewer number of patients in our study & the concordant studies & also because our study excluded the Killip class IV patients (cardiogenic shock) and post-CABG patients which definitely have higher rates of mortality.

In the present study, no patients from either study group suffered from major bleeding complications (whether related or not related to access site) which may be explained by the small number of patients and the less frequent use of GP IIb/IIIa inhibitors (4% in TRA & 18% in TFA groups).

Despite that the mean CRUSADE score was significantly higher in the TRA group of our study (32.24 ±15.86 vs 24.28 ±13.67, p=0.008), there was a significantly higher local hematoma in the TFA group (8 (16%) vs 2 (4%)) which is supported by several studies including ***Romagnoli et al.*** [14], ***Deftereos et al.*** [10],***Valgimigli et al.*** [18] and the RADIAL-AMI trial,but this may be due to higher use of GP IIb/IIIa inhibitors in the TFA group (9 (18%) vs 2 (4%)) in our study , 6 out of the 8 patients (75%) vs 1 out of the 2 patients (50%) who had local hematoma received GP IIb/IIIa inhibitors intracoronary followed by intravenous maintenance for 24 hrs.

This was also similar to a study done by ***De Carlo et al.*** [22] which aimed at analyzing the effectiveness of the TRA in reducing bleeding rates following urgent PCI in patients with acute coronary syndromes treated with GP IIb/IIIa inhibitors and included 531 patients in the TRA group & 130 patients in the TFA group & a case-matched comparison of the TRA versus TFA using propensity analysis to adjust for known risk factors for bleeding was done, it showed that local hematoma was significantly higher in the TFA group vs TRA and matched TRA groups (19 (14.6%) vs 11 (2.1%) vs 1 (0.8%), p <0.0001)

Pseudoaneurysm was only observed in 1 patient in our whole study and was in the TFA group which was not statistically significant (1 (2%) vs 0 (0%), p=0.314), this was not concordant with the **Jolly *et al.***[4] and ***De Carlo et al.*** [22] which showed significantly higher pseudoaneurysms in the TFA group (23 vs 7 patients & 6 vs 0 patients respectively).

Radial artery occlusion without ischemia detected by radial artery Doppler occurred in 3 patients in our study but there was no statistically significant difference (3 (6%) vs 0 (0%), p = 0.078) from the TFA group and this was also observed in the study done by ***Hou et al.*** [16], the **Chodor *et al.*** [19] and RADIAL-AMI trials, this may be related to longer compression time in those particular patients may be due to repeated oozing from the puncture site. [16,19,21]

There was a significantly lower duration of hospital stay in the TRA group (3.4 ±0.948 days versus 3.86 ±0.808 days, p <0.01) in our study and this is supported by the same results from the studies done by ***Mann et al.*** [15], ***Hou et al.*** [16], ***Deftereos et al.*** [10] *and* ***Romagnoli et al.*** [14] but there was no significant difference in the **Jolly *et al.***[4] and ***De Carlo et al.*** [22]. This also might be explained by the greater number of NSTEMI patients in the TRA group in the current study.

Study limitations

This study was a single experienced center study with a relatively small number of patients and the follow-up of the patients was only in-hospital with no intermediate or long-term follow-up and also the number of patients with STEMI in the radial group was significantly less than the femoral group which may have negatively affected some of the results of the femoral group.

CONCLUSIONS AND RECOMMENDATIONS

The current study concluded that radial artery access is a safe and effective approach for management of ACS, with TRA we get less bleeding and less local vascular complications without significant increase in fluoroscopy time or radiation exposure. Although there was no significant difference in mortality and morbidity, TRA offers the patient a more simple procedure with less hospital stay and if performed by experienced operators, should be the standard access in managing ACS specifically in STEMI. Femoral approach is a safe procedure except post-thrombolytic or GP IIb/IIIa therapy. Based on the results of our study, we strongly encourage developing the skills for TRA in all cath. lab centers.

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Tables

Table (1): Baseline demographic data of the whole cohort

Variable	Number (%)	
Age (years)	Mean ±SD	55.56 ±8.4
Male gender	90 (90%)	
Hypertension	68 (68.0%)	
Diabetes Mellitus	42 (42%)	
Dyslipidemia	36 (36.0%)	
Active smoking	55 (55.0%)	
Positive FH* of premature CAD**	28 (28.0%)	
Peripheral vascular disease	2 (2.0%)	
Cerebrovascular disease	1 (1.0%)	

Continuous variables are expressed as Mean ±standard deviation (SD), categorical variables are expressed in their absolute & relative frequencies (number (percentage)).*FH = family history, **CAD = coronary artery disease.

Table (2): Comparison of the baseline demographic data in both groups

Variable	Radial No. = 50 Number (%)		Femoral No. = 50 Number (%)		P-value
Age (years)	Mean±SD	55.18 ±8.1	Mean ±SD	55.94 ±8.76	0.653
Male gender	45 (90%)		45 (90%)		1.000
Hypertension	35 (70%)		33 (66%)		0.668
Diabetes Mellitus	22 (44%)		20 (40%)		0.685
Dyslipidemia	18 (36.0%)		18 (36.0%)		1.000
Active smoking	23 (46.0%)		32 (64.0%)		0.183
Positive FH* of premature CAD**	17 (34.0%)		11 (22.0%)		0.181
PVD***	0 (0%)		2 (4.0%)		0.153
CVD****	0 (0%)		1 (2.0%)		0.315

Continuous variables are expressed as mean ±standard deviation (SD), categorical variables are expressed in their absolute & relative frequencies [number (percentage)].*FH = family history, **CAD = coronary artery disease, ***PVD = peripheral vascular disease, ****CVD = cerebrovascular disease.

Table (3): Comparison between the type of ACS in both groups

Type of ACS	Radial No. = 50 Number (%)	Femoral No. = 50 Number (%)	P-value
STEMI	21 (42%)	42 (84%)	< 0.0001
NSTEMI	26 (52%)	6 (12%)	
UA	3 (6.0%)	2 (4%)	

Categorical variables are expressed in their absolute & relative frequencies [number (percentage)]. STEMI=ST elevation myocardial infarction, NSTEMI=non ST elevation myocardial infarction, UA=unstable angina.

Table (4): Comparison between the CRUSADE score in both groups

CRUSADE Score	Radial	Femoral	P-value
	No. = 50	No. = 50	
Mean ±SD	32.24 ±15.86	24.28 ±13.67	0.008

Continuous variables are expressed as mean ±standard deviation (SD).

Table (5): Comparison between procedural details in both groups

Variable		Radial		Femoral		P-value
		No. = 50		No. = 50		
		Number (%)		Number (%)		
Use of balloon angioplasty		16 (32.0%)		26 (52.0%)		0.043
Balloon diameter (mm)		Mean ±SD	2.36±0.26	Mean ±SD	2.14±0.40	0.041
Balloon length (mm)			19.38±1.71		17.15±3.68	0.012
Thrombus aspiration		10 (20.0%)		10 (20.0%)		1.000
*GP IIb/IIIa inhibitors		2 (4.0%)		9 (18.0%)		0.025
Type of stent used	#DES	47 (94.0%)		40 (80.0%)		0.081
	##BMS	2 (4%)		9 (18%)		
	###BVS	1 (2.0%)		1 (2.0%)		
Stent diameter (mm)		Mean ±SD	3.21 ±0.32	Mean ±SD	3.08±0.38	0.067
Stent length (mm)			27.02±5.07		25.30±7.31	0.175
No-reflow		0 (0.0%)		2 (4.0%)		0.153
**PTD time (mins)		Mean ±SD	380.00±171.64	Mean ±SD	298.81±175.97	0.087
***DTN time (mins)			36.67 ±9.03		43.90 ±20.05	0.050
****DTB time (mins)			42.67 ±9.52		50.57 ±20.31	0.040
Fluoroscopy time (mins)			10.86 ±4.88		9.76 ±4.74	0.256
Amount of dye used (ml)			169.60 ±21.28		187.00 ±37.65	0.006
Access site crossover		1 (2.0%)		1 (2.0%)		0.368

Continuous variables are expressed as mean ±standard deviation (SD), categorical variables are expressed in their absolute & relative frequencies (number (percentage)).

*GP = glycoprotein, #DES = drug-eluting stent, ##BMS = bare metal stent, ###BVS = bio-absorbable vascular scaffold, **PTD = pain to door, ***DTN = door to needle, ****DTB = door to balloon.

Table (6): Comparison between the in-hospital patient follow-up in both groups

Variable	Radial		Femoral		P-value
	No. = 50		No. = 50		
	Number (%)		Number (%)		
Mortality	1 (2.0%)		0 (0%)		0.315
Local hematoma	2 (4%)		8 (16%)		0.045
Pseudoaneurysm	0 (0%)		1 (2%)		0.314
Occlusion without ischemia	3 (6%)		0 (0%)		0.078
Duration of hospital stay (days)	Mean ±SD	3.4±0.948	Mean ±SD	3.86±0.808	0.010

Continuous variables are expressed as mean ±standard deviation (SD), categorical variables are expressed in their absolute & relative frequencies (number (percentage)).