

Early ambulation and discharge after four French femoral artery catheterisation for diagnostic coronary angiography

One of the bottlenecks experienced by cardiac catheterisation laboratories is the amount of time that patients must remain on the unit after femoral artery puncture. This remains a contentious issue and there are a few studies to guide units with regard to how early it is possible to safely ambulate and discharge patients home.

Earlier ambulation and discharge is convenient for patients and is also ideal for health care providers in the current climate of spiralling health costs as it reduces catheter laboratories' bed occupancy rates, reduces acute ward bed admissions occupancy time, may avoid the use of costly vascular sealing devices and redirect specialized nursing personnel care time. All of these entail savings in current hospital expenditures, potentially liberating resources for other uses.

In an earlier study with four French catheters using the femoral approach, we had shown that it is safe to ambulate patients within 1 h of sheath removal (1). This study prospectively investigated the possibility of early and safe ambulation and discharge time after five French femoral artery catheterisation for coronary angiography using the same timings as our earlier study.

Patient data was prospectively collected for the period 3 July 2008 to 25 June 2009. Ethical approval was obtained from the University of Malta. Patients included were limited solely to femoral artery catheterisation for coronary angiography.

Timings were defined as follows: manual pressing time, until active bleeding stops. This was followed by bed rest on the unit, followed by ambulation time on the unit, prior to discharge. Patients were nurse-managed (as is the usual *modus operandi*) from sheath removal. The cumulative time to discharge from sheath removal was therefore the sum of these three times. The target bed rest time was 1 h. Patients were reviewed with regard to bruising, local pain and haematomas not only prior to discharge, but also at 2–3 days after the procedure (depending on patient availability). All cases were nurse managed once the sheath had been removed.

Extant guidelines were used for the assessment of parameters such as pain, bruising and haematoma formation after femoral artery puncture (2–4).

Two hundred and sixty-two patients participated in this study. Timings are shown in Table 1. The mean time to discharge from the unit from sheath removal was 161.3 min. Local complications are shown in Table 2, at discharge and at 2–3 days after the procedure. One hundred and thirty-four patients returned for this latter review. There were no infections at the site and no clinical evidence of pseudoaneurysms (ultrasound assessment is not routinely done). There were no haemorrhagic episodes in the entire series.

The use of vascular closure devices may significantly shorten time to haemostasis and thus may shorten recovery. However, the use of these devices is associated with an increased risk of infection, lower limb ischemia/arterial stenosis/device entrapment in the artery, and need of vascular surgery for arterial complications (5). Cost is also an issue as these devices are not inexpensive.

In this study, early ambulation after manual compression and a short period of bed rest resulted in few access site complications and minimal access site-related complaints of soreness and pain and bruising, with no patient experiencing severe pain, significant bruising or large haematomas. No vascular repair surgery, endovascular luminal dilation or stent procedures were required.

In conclusion, this study shows that patients may safely ambulate after an hour of bed rest, without the need for vascular closure devices to encourage such short timings.

Table 1. Timings of individual stages after sheath removal

	Pressing time (min)	Bed rest time (min)	Ambulation on unit (min)
Mean	11.4	61.1	88.8
SE	0.2	0.5	2.0
Median	10.0	60.0	90.0
SD	2.8	8.2	32.8
Min	1.0	45.0	3.0
Max	20.0	120.0	195.0

Table 2. Bruising, pain and haematoma formation prior to discharge and at 2–3 days after the procedure – scoring references 2,3 and 4.

	Score	Bruising (n)	Pain (n)	Haematoma (n)
Prior to discharge (n)	0	279	255	243
	1	12	6	18
	2	1	1	1
At 2–3 days (n)	0	81	107	121
	1	50	26	12
	2	3	1	1

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