

Day-case arteriography

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SUMMARY

Outpatient femoral arteriography has been carried out in 100 consecutive patients presenting with evidence of peripheral vascular disease. Patients have been observed for seven hours in an observation ward bed. No bleeding or other complications have been encountered. The cost-saving to the hospital is approximately £60.00 per case. More importantly, the service to patients has been improved, with less chance of last minute cancellation due to unavailability of a surgical bed.

INTRODUCTION

Arteriography continues to be the standard method of investigation of patients presenting with intermittent claudication, providing an overall picture of the extent of arterial disease and directing the patients' further management. It has been usual practice for patients to be admitted to hospital, and confined to bed for a period of up to 24 hours following the arteriogram in an attempt to reduce the risk of post procedural bleeding.

During recent years technological developments have permitted the use of progressively smaller-gauge catheters capable of withstanding the high injection pressures and delivering the fast flow rates required for femoral arteriography. Consequently the risk of haematoma associated with femoral puncture has been reduced, and the likelihood of delayed bleeding lessened. The possibility of performing arteriography on a day-case basis was soon appreciated and there have been reports of this from the United States^{1,2,3} and from the United Kingdom in 1990.⁴ There is now a growing trend towards this approach.

We report on our experience of 100 day-case arteriograms performed over a 12 month period.

PATIENTS AND METHODS

All patients had a history and clinical findings which suggested vascular disease of the lower limbs. They had been referred for a vascular surgical opinion at the Belfast City Hospital. The only selection criteria for the day-case procedure were that the patient had a palpable femoral pulse and was not living alone. Elderly patients were not excluded, and ages ranged from 46 to 81 years.

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Patients were asked to report fasting to the radiology department at 8.30 am. It was emphasised that general medications such as antihypertensive and anti-anginal treatment should be taken normally. The injection area was infiltrated with local anaesthetic and the femoral artery punctured using a standard 18 gauge hollow needle and a single puncture technique. A guidewire and subsequently a 5 French straight catheter was introduced, its tip being positioned just proximal to the aortic bifurcation. Non ionic contrast (80 ml) was injected and a standard series of films obtained. The catheter was removed and local pressure applied for five to ten minutes to the puncture site until bleeding stopped. Two patients were studied in any one morning, each investigation taking an average 30 minutes, so that all day-case arteriograms would be completed before 10 am.

Following the application of a pressure dressing the patient was transferred from the X-ray table to a bed and then moved to the observation ward in the accident and emergency unit, which is adjacent to the radiology department. At approximately 5 pm that evening the groin area was inspected by the radiologist. The pressure dressing was replaced by a simple plaster and the patient was allowed to return home, having been advised that should there be any subsequent bleeding manual pressure should again be applied and the patient should report immediately to the casualty department. The patient was encouraged to spend the remainder of the evening resting.

RESULTS

All the patients were able to leave hospital on the evening of their arteriogram. A follow-up telephone questionnaire confirmed that none experienced any bleeding other than a few drops of blood, and none required emergency readmission. Any bruising associated with the procedure had resolved within the week, and all the patients said they would be quite prepared to have arteriography repeated on a day-case basis if required.

DISCUSSION

Day-case arteriography was introduced both because of the pressure on surgical beds and to increase the efficiency of the use of angiography equipment. Prior to its introduction patients had been admitted to a surgical bed on an appointed date, but due to last minute unavailability of beds, admission frequently had had to be postponed without prior notice. This produced both patient inconvenience and wastage of time in the vascular room in the radiology department. The pressure on surgical beds has been lessened by day-case arteriography. Observation ward beds are not normally occupied during the day, and the day cases use beds that are otherwise empty.

This study confirms that day-case arteriography offers a greater degree of flexibility. Arteriograms are obtained sooner following the patients' initial consultation and review appointments can be arranged within a few weeks of the procedure to discuss treatment options. This flexibility in turn has enabled significantly increased activity; the total number of arteriograms performed for intermittent claudication was 406 during the study year, compared to 292 for the previous year.

The actual radiological costs of performing an arteriogram are the same whether done as an inpatient or an outpatient. The overall cost-saving to the hospital for

the day patient service is the difference between an overnight stay in a surgical bed (£126) and an eight hour period in the observation ward (£64). In this hospital the saving has therefore been estimated at £62.00 per patient. In the context of the overall cost this saving is small but perhaps not insignificant. Our feeling is that day-case arteriography is a safe, inevitable step forward.

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