Nurse-led management of IV fluorescein angiography

UNDEARTAKING fluorescein angiography is no longer the sole preserve of doctors. With the appropriate training and level of confidence, senior ophthalmic nurses can perform this procedure.

The few research studies that are available on nurse-led fluorescein angiography focus mainly on the physiological reactions and side-effects. The studies conclude that there is no significant difference in side-effects and complication rates whether the procedure is performed by doctors or nurses (Bardy and Waterman, 2002).

A proactive nurse-led approach to the management of patients undergoing intravenous fluorescein angiography is being practised in the eye centre at the Central Middlesex Hospital. The nursing team believes that nurses are at the cutting edge of ophthalmic clinical practice while acknowledging accountability and clinical governance.

The nurse-led approach emphasises patient-centred care, effective and safe practice, and the development of excellence in ophthalmic care by using a protocol that has been developed to ensure evidence-based practice.

In accordance with the Patient’s Charter (Department of Health, 1991), patients are allocated a named nurse to provide the continuity of care that is so essential for making a difference in ophthalmic patient care. Listening to patients and carers, and giving quality information to reduce their anxiety, increase their confidence, and maximise cooperation throughout the procedure, are also seen as essential in achieving a successful outcome.

Protocol for this procedure

Because there are adverse reactions associated with this procedure, it is essential that a doctor is always available, and a checked and up-to-date resuscitation trolley is placed in the treatment room.

The nurse must always inform medical staff prior to cannulation, due to the potential risks.

Care should be taken to ensure that an air bubble is not introduced, increasing the risk of an air embolism.

The butterfly needle should be removed only when the procedure is complete and it is safe to do so.

The injection is stopped if the patient experiences pain.

If there is evidence of fluorescein staining of the skin around the needle site indicating extravasation, the vein is taped to avoid ulceration and ice is applied to the area.

Reactions to IV fluorescein angiography

Mild reactions include:

- Transient nausea;
- Vomiting;
- Yellowing of the skin and urine for 24 hours;
- Fainting;
- Excessive sneezing.

The most severe reactions include:

- Laryngeal oedema;
- Anaphylactic shock;
- Cardiac arrest.

Training is instrumental to a nurse-led approach. The ophthalmic nurse practitioner must have an ophthalmic nursing qualification, and an ophthalmic-trained doctor is assigned to carry out the training.

Supervised practice continues until the procedure has been performed confidently and autonomously, on a minimum of 10 patients. The nurse must also attend study programmes on intravenous additives and peripheral cannulation as appropriate.

On completion of this training a certificate of competence is issued by the consultant as evidence of the nurces’s proficiency. Annual attendance at a cardiopulmonary resuscitation study day is required. An annual review of competence by a senior member of the medical team is another ongoing requirement for which the nurse is assessed carrying out the procedure during six consecutive clinic sessions.

A nurse-led approach to management

Patient consent

Fluorescein is a drug and must be prescribed by a doctor, while intravenous fluorescein angiography is an invasive procedure. It is, therefore, mandatory that the patient’s
informed and explicit written consent is obtained by the doctor before the procedure is carried out. Where patients access clinics directly, it should not be assumed that their presence at the clinic implies consent to a particular treatment (Department of Health, 2001). The consent is obtained when the patient presents in the outpatient clinic. Initially, the patient is given verbal information by the doctor, which is reinforced by a leaflet explaining the procedure.

A preliminary meeting with the named nurse follows, during which the patient is given a brief outline of the procedure. This gives the named nurse the opportunity to build up a rapport with the patient, and allows the patient to vent any fears and anxieties.

**Presentation at the clinic**
A welcoming approach is extended to the patient when presenting at the clinic for angiography. The patient will already be familiar with his or her named nurse and other members of the team. At this stage it is important to recheck the patient’s level of knowledge and understanding of the procedure, as well as his or her current health status. It is essential to allow enough time to remedy any knowledge deficits and put the patient at ease, thus ensuring full cooperation throughout the procedure.

Patients will be conscious during intravenous fluorescein angiography and so information-giving is required before, during, and after the procedure. Validis (1997) contends that vision is arguably our most important sense and that it is often not fully appreciated until it is compromised. Impairment of vision can create feelings of isolation and anxiety about becoming blind.

**Ophthalmic preparation**
Prior to the procedure, the patient’s visual acuity is checked and recorded for medical and legal reasons. Cyclopentolate 1 per cent and phenylephrine 2.5 per cent eye drops are then instilled into both eyes to dilate the pupils. This provides a better view of the retina for taking photographs during the procedure.

**The procedure**
Generally, the procedure takes place in the outpatient department. The ophthalmic nurse stays with the patient throughout the whole procedure since the nursing skills involved in putting the patient at ease and ensuring safety are fundamental to successful outcomes.

Before the procedure, the medical photographer takes colour photographs of the retina. The ophthalmic nurse then cannulates before giving 5ml of 20 per cent aqueous sodium fluorescein rapidly into the antecubital vein of the arm with the patient in a sitting position. The fluorescein takes about seven seconds to reach the retina. A blue light is shone into the eye and the emitted green light is photographed through a barrier filter, which removes any reflected blue light. Black-and-white photographs are taken soon after the injection. The photographs can give further information about existing ocular pathology and the structure of the blood vessels.

**After the procedure**
After the procedure, the patient is reassured and offered a drink of choice. It is also important to check the blood pressure before discharge to monitor for any shock reaction. The patient is discharged when the ophthalmic nurse deems it safe, which is usually 15–20 minutes after the procedure.

Importantly, the nurse gives the patient the following advice about his or her vision:
- The patient may see blue and red lights immediately after the procedure;
- It takes approximately four hours for the vision to return to normal;
- The patient may experience difficulty with focusing during this time;
- The patient is informed that any yellow discoloration of the skin and urine takes approximately 24 hours to disappear. The patient is advised to take plenty of fluids during this time.

Contact numbers are provided in case the patient requires any further help and advice, and a follow-up appointment is made for two weeks after the procedure. During this time, the photographs are processed and reviewed by the consultant. Depending on the results, further treatment such as laser therapy may be required.

**The extended role of the ophthalmic nurse practitioner**
The scope of clinical practice for the ophthalmic nurses in the outpatient clinic has been extended, enabling them to perform peripheral venous cannulation for patients undergoing fluorescein angiography. In this way the ophthalmic practitioners have increased their knowledge and skills, and gained greater autonomy and job satisfaction. Adopting a collaborative approach with the medical team has also made a difference to the service offered in the clinic. It has given the doctors more time to see more patients, which has in turn reduced clinic overload and waiting lists, and helped nurses to meet their targets.

The impact on the patients attending the clinic has been significant. When asked about their experience of the procedure, they verbally confirm that they have felt well supported by the amount of time spent with them by a named nurse and reassured by the information given to them throughout this procedure.

**Conclusion**
A proactive nurse-led approach to intravenous fluorescein angiography constitutes an innovative development in ophthalmic practice. It has increased the professional knowledge and practice of the ophthalmic nurse practitioner and has had a significant impact on the outcomes of the procedure. It has also resulted in positive patient perceptions about the continuity of having a named nurse and an allocated amount of quality time. Safe, accountable, evidence-based practice, underpinned by a flexible, collaborative approach to meeting client needs can help to support and reassure them, thus making a difference to their care.

**References**

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