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The Royal College of Ophthalmologists Intravitreal Injections Procedure Guideline

1. Appropriate diagnosis must be reached and a treatment plan made.
2. Intravitreal (IVT) injections must be delivered by, or under the supervision of an ophthalmologist experienced in the procedure.
- 3.1. Explain the procedure and reassure the patient. Include:
 - The importance of treatment
 - The treatment options
 - Why the IVT procedure is appropriate for the patient
 - What the treatment involves/what to expect/what the risks are^{1,2}
 - The importance of probable repeated injections, and the frequency at which these will be required, and for how long
 - Obtain signed consent from patient prior to first procedure; this will normally suffice for the course of treatment when the drug is licensed for IVT. This is insufficient, however, when the drug is not licensed for intravitreal usage e.g. Triamcinolone which has no long term efficacy and safety information available.

3.2. Clinical Setting of care

Procedure may be carried out in theatre or a dedicated room in outpatients.³

- For outpatient delivery, an enclosed, dedicated clean room (as defined by the local Infection Control Team) which only deals with clean (non-infected) cases, and is free from interruptions
- Room must have good illumination and washable floor⁴ (as confirmed by local Health & Safety regulations); facilities for indirect ophthalmoscopy are advantageous but not mandatory
- Ceiling of room should be non-particulate in nature (i.e. no dust or debris should be able to fall on to operative field during procedure)⁴
- Resuscitation facilities available nearby
- Surgeon's hands should be washed and sterile gloves worn.⁵

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3.3. Minimum requirements

- Application of single use mydriatic to achieve adequate pupillary dilation (dilatation is preferred for adequate visualisation after the injection is given, unless otherwise contraindicated) ⁵
- Equipment : sterile eyelid speculum, surgical gloves, sterile toothed microforceps, sterile cotton buds, sterile ophthalmic drape, sterile mm gauge (callipers or rule), povidone solution/ iodine wash and syringe and 1% lignocaine (without adrenaline). Small injection needles are preferable eg 27-30 gauge. The injection needle length must be ½ to 5/8 inch. ⁵
- Adequate sterilisation may be achieved with a single application of antibiotic drops e.g. Guttae Chloramphenicol or Ofloxacin within 1 hour pre-injection when supplemented with Povidone 5% eye drops applied 3 minutes pre-injection. ⁵⁻⁷ Povidone eye drops should be applied prior to eyelid cleaning to allow enough time for its effect without introducing unnecessary delays.

4. Preparation and administration of IVT treatment

- Measure the patient's intraocular pressure (IOP) prior to injection (this measurement does not have to be immediately before the injection)
- Check pupillary dilation
- A biomicroscopic examination may be undertaken prior to injection (optional as indicated)
- Apply single use topical anaesthetic to the eye
- Wash hands thoroughly and wear sterile gloves
- Instill 5% povidone iodide on to the ocular surface and allow adequate time (3 minutes) prior to injection ^{5,6}
- Clean periocular skin and eyelid margins and eye lashes, with 10% povidone iodine ^{5,8} prior to draping ⁸
- Insert eyelid speculum, ensuring that it is well positioned underneath the eyelids to direct the eyelashes away from the field ^{5,8}
- Supplemental subconjunctival anaesthetic (1ml of 1% Lignocaine [without adrenaline]) in the area of planned IVT may be considered. ^{5,8} In a severely inflamed eye a full subtenon's anaesthetic may be necessary
- Instruct the patient to direct gaze away from the site of injection
- Mark the injection site using the mm gauge (the entry site of the needle should be 3.0-3.5 mm from the limbus in aphakic/pseudophakic patients, and 3.5-4.0 mm in phakic patients). Avoid the horizontal meridians of the globe; the inferotemporal quadrant is preferred although the actual site may be changed in rotation.
- Opening of needle/syringe pouch should be done immediately prior to the injection
- If the drug is pre-loaded, carefully remove the protective cap from the pre-prepared drug syringe without twisting or turning and eject the air bubble at the top of the syringe. Take care not to expel any drug. Do not draw back the plunger.
- If not pre-loaded then the drug should be prepared aseptically immediately before single usage; withdrawal is according to manufacturer's instructions. Excess drug in the syringe

should be expelled through the injection needle. (This ensures that the injection needle hub is fully primed with no air therein).

- Using forceps to steady the eye, the needle is inserted perpendicular through sclera with the tip aimed towards the centre of the globe (to avoid any contact with the posterior lens)
- Inject appropriate volume (0.05 to 0.1 ml) of therapeutic agent slowly and carefully. Be careful to avoid contact between needle shaft and lid margin
- Remove needle slowly and carefully. A sterile cotton-tipped applicator may be used to prevent reflux and to steady the eye. Discard syringe and needle appropriately
- Apply 1-2 drops of single use antibiotic into treated eye
- Excess iodine may be irrigated away at end of procedure
- Check that the patient is able to see objects immediately after injection to ensure that the retinal artery is perfused.⁵

5. Post-injection management

- Measure IOP within 30 minutes after injection and manage appropriately.⁵ Paracentesis should be avoided if possible⁵
- Check injection wound site at slit lamp for the rare occurrence of vitreous wick, and manage appropriately
- Discharge: advise patient to administer antibiotic drops qds for a minimum of 3 days post-injection⁸
- Patients should be instructed to report any symptoms regarding eye pain or discomfort, increased redness of the eye, or additional blurring of vision (which may indicate endophthalmitis) to the eye department without delay.⁵⁻⁸ This is particularly important in the 2 weeks following injection. Patients should be informed that some blurring of vision is common immediately post-injection; this is often described as 'seeing spots floating in the eye'. The floaters usually resolve after a few days to a week.

References

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4. NHS Estates. Infection control in the Built Environment. The Stationary Office. London. 2002
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This document will be reviewed in 2 years.

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