Diagnostic Assessment Tools and Intravitreal Injection Technique illustrated

Dr. Motasem Al-Latayfeh, MD
Consultant Ophthalmologist & Vitreoretinal Specialist
Visual Acuity Assessment and Diagnostic Tools
Diagnostic Assessment Tools

- Eye Examination
- Best-Corrected Visual Acuity (BCVA) → Snellen chart / ETDRS
- Contrast Sensivity
- Fluorescent angiography
- Optic Coherence Tomography OCT
- VFQ-25
Visual acuity and visual function tests

Snellen visual acuity chart

- A visual acuity test was developed in 1863 by Dutch ophthalmologist Hermann Snellen.
- The **Snellen chart is the standard eye test used to** check VA
- The Snellen chart has increasing numbers of progressively smaller letters on each line.
- Snellen fractions relate to the ability to identify a letter of a certain size at a specified distance*. 
Visual acuity and visual function tests
ETDRS visual acuity chart

- The Early Treatment Diabetic Retinopathy Study (ETDRS) trial methodology became the “Gold Standard” visual acuity tool for clinical trials.

- The patient is required to read all of the letters starting with the top row, but there are only 5 letters per line.

- The examiner scores visual acuity letter by letter rather than by line by line.
Visual acuity and visual function tests

Contrast sensitivity tests

- Contrast sensitivity testing describes subtle levels of visual function not accounted for by the visual acuity test; it more accurately quantifies the loss of vision in cataracts, corneal edema, neuro-ophthalmic diseases and certain retinal diseases.

- Contrast sensitivity testing reports show a contrast threshold for each of several letter sizes.\(^3\)

- Loss of contrast sensitivity is a frequent consequence of wet AMD\(^1\) and other retinal diseases.
Examination of the retina
Ophthalmoscopy (direct & indirect)

- The ophthalmoscope is an instrument that illuminates the interior of the eyeball, allowing examination of the retina, optic disc and retinal vessels at the fundus and the detection of eye disorders and optic nerve changes.¹
The slit lamp is a low-power microscope combined with a high-intensity light source that can be focused to shine a thin beam into the eye. The patient sits with the instrument placed in front, resting chin and forehead on a support to keep the head steady.\textsuperscript{3}
Fundus photography

- A fundus camera or retinal camera is a specialized low-power microscope with an attached camera designed to photograph the retina, including the optic disc and macular region.

- Fundus cameras are used for monitoring progression of a disease, diagnosis of a disease (combined with retinal angiography), or in screening programmes.\(^3\)
Fluorescein angiography

- This involves visualisation of the retinal and choroidal blood circulation using a fluorescent dye (sodium fluorescein).

- The dye is injected into the bloodstream and the retina photographed through the dilated pupil as the dye enters the retinal vessels.

- It is used to evaluate vascular diseases of the retina and choroid.\textsuperscript{24}
Optic Coherence Tomography: OCT

- Tomography relies on the principle of light interferometry

- Optical coherence tomography (OCT) provides:
  - High resolution cross-sectional images of the retina
  - Quantitative measurements of the retinal thickness

- This is a useful diagnostic technique as an increase in retinal thickness and loss of visual acuity may occur in the absence of fluorescein leakage.
Common Diseases Treated by IVT Injections

- AMD
- CSME
- Macular Edema Secondary to Retinal Vein Occlusions
- Endophthalmitis
- Uveitis
- CME
- CNVM secondary to multiple retinal diseases
Technique of Intravitreal Injection
Risks of intravitreal injections

- Side effects are rare, and many can be managed. They may include:
  - Pain
  - Increased pressure in the eye
  - Inflammation
  - Bleeding
  - Damage to the retina or surrounding nerves or structures
  - Infection
  - Vision loss
  - Loss of the eye (very rare)
  - Side effects from the medicines that are used
Macula Thickness: Macular Cube 512x128
THANK YOU