

The eye as a window to the brain: Non-invasive neuromonitoring

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CPD record / Reader knowledge check



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- 1. A patient presents following head trauma with unilateral mydriasis, ptosis, and a 'down and out' eye position. What does this clinical picture most likely represent?**

 - Relative afferent pupillary defect due to optic nerve injury
 - Oculomotor nerve (CN III) palsy
 - Horner syndrome from sympathetic disruption
 - Sixth nerve palsy from raised intracranial pressure
- 2. A patient with acute traumatic brain injury has raised intracranial pressure (ICP) confirmed on invasive monitoring. Fundoscopy shows no disc swelling. What is the most appropriate interpretation?**

 - The invasive ICP reading is likely erroneous
 - Raised ICP is excluded by the normal fundoscopic findings
 - Papilloedema is a delayed sign and its absence does not exclude acutely raised ICP
 - The patient should be reassessed in one week for disc swelling
- 3. When assessing a patient for pseudo-papilloedema due to suspected optic disc drusen, which combination of investigations is most appropriate?**

 - MRI brain and lumbar puncture
 - Fundus autofluorescence, cross-sectional OCT of the optic nerve head, and B-scan ultrasonography
 - Visual evoked potentials and visual field testing alone
 - Fluorescein angiography and intraocular pressure measurement
- 4. Spontaneous venous pulsations (SVP) are observed on fundoscopy in a patient with headache. What is the most clinically accurate statement regarding this finding?**

 - SVP are diagnostic of normal intracranial pressure and no further investigation is needed
 - SVP are present in all healthy individuals and their absence always confirms raised ICP
- 5. A patient who sustained a mild traumatic brain injury is found to have reduced visual acuity and colour vision on examination six weeks post injury. OCT is performed. What would you expect to find, and what does this represent?**

 - Papilloedema from raised ICP
 - Normal OCT
 - Retinal nerve fibre layer and ganglion cell layer thinning consistent with indirect traumatic optic neuropathy
 - Macular oedema from direct globe trauma
- 6. Which of the following best the advantages of OCT angiography in the neuromonitoring of critically ill patients?**

 - It provides real-time invasive measurement of cerebral perfusion pressure
 - It is a non-invasive, objective tool that can visualise retinal microvasculature and is feasible even in unconscious or critically ill patients
 - It replaces the need for CT or MRI in all cases of traumatic brain injury
 - It requires pupil dilation and intravenous contrast, limiting its use at the bedside

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