

Title:	Optical coherence tomography
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Aim

To assess the safety, effectiveness and cost-effectiveness of optical coherence tomography (OCT):

a) compared with fundus fluorescein angiography (FFA) or clinical observation in the diagnosis of macular diseases; b) in addition to FFA and clinical examination in the monitoring of patients with macular diseases; c) in addition to computerised perimetry and clinical examination in the diagnosis of glaucoma; and d) in addition to computerised perimetry and clinical examination in monitoring of patients with glaucoma.

Results and conclusions

Safety: OCT is considered a safe procedure.

Effectiveness: No direct evidence was found reporting the health outcomes of patients with macular diseases or glaucoma, assessed with and without OCT. Therefore, evidence for accuracy, change in management and the expected benefit of changes in treatment on health outcomes was considered to evaluate the effectiveness of OCT using a linked evidence approach.

Macular diseases: OCT was found to have a similar yield to FFA for the diagnosis of macular oedema. A proportion of patients who are positive for the presence of macular oedema on OCT would be negative on FFA, and vice versa. In the absence of verification of 'true' disease status in patients with discordant test results, the accuracy of these results is uncertain. Evidence for the comparative yield of OCT and FFA for the detection of other non-tractional macular abnormalities was not found. OCT appears to provide an incremental yield over clinical examination for the detection of tractional diseases (epiretinal membrane, macular holes, vitreomacular traction syndrome). The accuracy of these results is uncertain. In the absence of conclusions regarding accuracy, it is not possible to draw conclusions regarding the clinical significance or impact of OCT on health outcomes using a linked evidence approach.

No randomised controlled trials (RCTs) were identified which compared a monitoring strategy involving OCT to a strategy involving FFA in patients with treated or untreated macular disease.

Glaucoma: Evidence for the incremental yield of OCT over clinical examination for the detection of glaucomatous damage was not found. Conclusions regarding the impact of OCT on health outcomes are not possible using a linked evidence approach.

Evidence for the effectiveness of OCT in monitoring patients with glaucoma was not found.

Economic considerations: A modelled economic evaluation was not undertaken. The total annual cost of OCT for macular diseases is estimated to range between \$6.1 million (using FFA utilisation to estimate potential OCT utilisation) and \$21.7 million (epidemiological utilisation estimates). The total annual cost for glaucoma is estimated to range between \$8.3 and \$13.8 million (epidemiological utilisation estimates).

Advice

OCT is a non-invasive ophthalmic imaging technique, which provides high-resolution cross-sectional images of the macula, which in turn allows identification of changes due to ophthalmologic conditions. OCT is intended to be used for diagnosis and monitoring of retinal diseases and glaucoma in a specialist ophthalmologic setting. The MSAC finds that OCT is a safe procedure. MSAC finds that there is currently insufficient evidence to recommend public funding for the assessment of macular disease or glaucoma.

Methods

MSAC conducted a systematic review of the biomedical literature (Medline; EMBASE; Pre-Medline; ACP Journal Club; Cochrane Library; Database of Abstracts of Reviews of Effectiveness; NHS Economic Evaluation Database, Health Technology Assessment Database) from 1990 to August 2008. Reference lists and health technology assessment websites were also searched.