

Femtosecond laser-assisted cataract surgery (FLACS) for the treatment of age-related cataract

Plain language summary

What has been assessed and why?

Cataract surgery is one of the most commonly performed operations. The current standard method is done by hand using a blade to access the cataract, which is then emulsified and aspirated through an ultrasound probe (phacoemulsification).

The objective of this report was to assess whether a new technique which uses a computer-controlled system, named Femtosecond Laser Assisted Cataract Surgery (FLACS), provides advantages in terms of effectiveness, safety and procedural time compared to the standard technique.

How has this assessment been done?

A systematic search of the scientific studies comparing effectiveness, safety and organisational impact of FLACS vs standard phacoemulsification in patients affected by cataract was carried out. Patients' organizations were also contacted to gather their perspectives on relevant outcomes and subpopulations to be considered within this assessment.

Five authors screened and selected the eligible studies, and independently assessed their quality and extracted relevant data, resolving any discrepancies through discussion. Study data were pooled through meta-analysis.

Feed-back on the draft of this assessment was obtained from a Spanish patient organisation.

What are the results?

Twenty-one studies (randomised controlled trials) meeting the inclusion criteria were selected and analysed, and results on relevant outcomes pooled. Included studies recruited a total of 1633 patients, 76% of whom were operated on in Europe. One or both eyes could be operated on, with surgery performed on a total of 2118 eyes.

The pooled estimates showed no evidence of a difference between study groups for effectiveness outcomes (visual acuity and refractive outcomes). None of the retrieved studies reported results on health-related quality of life.

Safety outcomes were classified as intraoperative complications and postoperative complications. Pooled analyses did not show differences between the two techniques in any of these outcomes. Limited evidence is available on the impact of each technique on mean surgical time and only one study showed a very limited reduction for this outcome with FLACS.

In their feedback patients stated that, given the effectiveness and safety of standard treatment, more sophisticated technologies are not needed for cataract surgery, while prevention of cataract remains an unmet need.

Which conclusions?

The evidence retrieved, suggesting that FLACS does not lead to improvement in effectiveness and safety outcomes compared to standard cataract surgery, is of low or very low quality.

Pending results from two large studies could contribute to solving uncertainties. This report will be updated once the results from both studies will be available.