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Objectives

We aimed to evaluate the cost-effectiveness of aflibercept and bevacizumab compared to ranibizumab for the treatment of macular oedema (MO) secondary to central retinal vein occlusion (CRVO) in a within-trial cost-utility analysis. The analysis used data from the LEAVO study, a UK-based, multicentre, double-masked, randomised, non-inferiority trial.

Methods

Health-related quality of life (HRQoL) data were measured using the Visual-Functioning Questionnaire Utility Index (VFQ-UI), EQ-5D and EQ-5D with vision bolt-on (EQ-5D V), at baseline, 12, 24, 52, 76 and 100 weeks. Resource use data were collected using a bespoke, patient reported questionnaire. A within trial cost-utility analysis was carried out from the UK NHS and Personal Social Services perspective. Costs and QALYs were discounted at 3.5% annually. In the base-case analysis, utilities were calculated using the VFQ-UI. In sensitivity analyses, drug costs for ranibizumab and aflibercept were discounted at 30% and 50% and utilities were calculated using the EQ-5D questionnaires.

Results

In the base-case analysis, there were small, but uncertain, differences in QALYs between the three treatments. The difference in costs between aflibercept and ranibizumab was £1245 (95% confidence interval [CI]: £421, £2070), between bevacizumab and ranibizumab was -£6760 (95% CI: -£7546, -£5973) and between aflibercept and bevacizumab £7984 (95% CI: £7209, £8759). Bevacizumab was dominant when compared to ranibizumab and aflibercept. Aflibercept had an ICER of £283595 when compared to ranibizumab, with probability of cost-effectiveness of 0.04 at the £20,000 per QALY threshold. The conclusions regarding cost-effectiveness were unchanged in all sensitivity analyses.

Conclusions

Bevacizumab is an economically attractive alternative to ranibizumab and aflibercept for the treatment of MO due to CRVO, because of its lower costs and similar effect on patient HRQoL. Bevacizumab is currently unlicensed but its adoption could result in substantial savings to healthcare systems around the world.