Editorial

Second-eye cataract surgery: valuable investment or unaffordable luxury?

Cataract is common (affecting over half of 80 year olds), and in older people most often bilateral. Cataract surgery is one of the most commonly performed operations. Modern cataract surgery is quick (20 min), restored vision is almost immediate, and surgical complication rates are low (1%). Most operations are now performed under topical anaesthesia, so tend to underestimate gain. Alternative methods, using the standard gamble or time-trade off, yield higher values. Using this approach, Brown et al. [1] recently calculated a QALY gain of 1.6 for first-eye surgery and 2.8 for bilateral surgery [1]. We previously showed that second-eye surgery meets usual criteria for cost-effectiveness [2].

Against this backdrop of success, Meuleners et al. [3] report a population-based record-linkage study of 28 396 older Australians who had surgery to both eyes, showing that there may be an unexpected downside. They demonstrated that the rate of injurious falls doubled between first- and second-eye surgery, and that this reduced after second-eye surgery, but remained 25% above baseline. This raises three questions. Why? Are these results compatible with previous studies? And does this have implications for the priority and timing of second-eye surgery?

References

Meuleners et al. used routinely collected data on a whole population. This is a powerful research method. They included everyone who had had two cataract operations, each participant serving as their own control in an interrupted time series. Falls are poorly recorded in routine records, but injurious falls sufficient to cause hospital admission are a reasonable proxy for epidemiological purposes, despite admissions for injury in this study being relatively uncommon (4% over 4–5 years follow-up).

Meuleners’ et al. observed increase in fall rates is in marked contrast to our own findings. We performed randomised trials of both first- and second-eye surgery using waiting list controls. The first-eye study follow-up was essentially equivalent to the period between first- and second-eye surgery in Meuleners’ study, and this showed a reduction in falls of 34% compared with the control group [2, 4]. Surgical trials are difficult to perform; using ‘waiting list’ controls [2, 4] makes it difficult to include people with severe cataract and poor visual function. A randomized trial might have good validity for the population included, but may not be as generalizable as a record-linkage study.

Many things can change over time which increase the risk of falling, such as ageing, prescription of drugs or onset of new co-morbidities. Some of the observed increased risk may be explained by regression to the mean. Cataract surgery is performed electively and is usually postponed on patients who are unwell (for example, if recovering from the effect of a fall); consequently the health status of the operated group would be expected to be better than average before operation. But this cannot fully explain the biphasic pattern (a rise after the first and then a fall after the second operation), and forms only a partial explanation at best.

There is no doubt that poor visual function is causally related to risk of falling, but there is also an associated reduction in activity that reduces the opportunity to fall. Activity increases after cataract surgery, which has the potential to offset the reduction in falls risk from improved vision [4, 5].

Visual function cannot be entirely explained in terms of acuity—a measure of spatial resolution at high contrast. Arguably more important for navigating and remain safe in a complex and variably lit environment are contrast sensitivity (ability to detect a stimulus against a background of given brightness), depth perception (including stereopsis, the ability to use two eyes to see in three dimensions) and visual field size. They each contribute to falls risk and are improved by second-eye cataract surgery beyond what is seen for visual acuity.

A further consideration between first- and second-eye surgery is the difference between the eyes. Those with bilateral cataract frequently report vision-related problems while waiting for second-eye surgery. Anisometropia occurs when there is a refractive difference between the eyes and results in distortion. Binocular is superior to monocular vision for most functions, but unilateral pathology can compromise this, and in some cases, binocular vision can be worse than vision in the better eye alone, due to the phenomena of binocular inhibition and rivalry.

Whatever the mechanism of this observed increase in the rate of falling, Meulener’s study shows that cataract surgery patients are at risk population. One of the consequences of cataract surgery is increased activity which is to be welcomed; life is for living. But this may unmask other risk factors for falling. Heightened awareness of this risk should encourage falls risk assessment as part of the care package so as to get maximum benefit from what is undoubtedly a life enhancing procedure.

There is a further implication. Second-eye cataract surgery has been described by some healthcare commissioners as a ‘procedure of limited clinical value’ in recent years, with restricted access used as a cost-saving measure. This is based on the assumption that visual function can be adequately described by visual acuity alone, and that this is reasonable after first-eye surgery. There is plentiful evidence that this is not the case [2, 6], but the possibility of an increased risk of injurious falls and hospital admission adds further weight, and suggests that the interval between first- and second-eye surgery should be reduced as much as possible.

Key points

- New evidence suggests that rate of falling may increase after first-eye cataract surgery, and this is offset by operation on the second eye.
- Second eye cataract surgery improves vision beyond that achieved by first-eye surgery, and is cost-effective.
- Delay in operation for the second eye should be minimised, and falls risk assessment undertaken on those undergoing cataract surgery.

References

