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LETTER TO THE EDITOR

Review of cataract surgery in rural north Western Australia with the Lions Outback Vision

Lions Outback Vision, a part of the Lions Eye Institute, provides visiting ophthalmology outreach services for residents in rural areas of Western Australia as well as tackling inequity of access to surgery for Indigenous Australians.[1,2] To address geographic barriers, a tele-ophthalmology initiative has enabled specialists to provide care over a larger region. A senior registrar/fellowship position exists with exposure to surgery in multiple regional and remote centres of Western Australia.

A retrospective, observational clinical audit was conducted of cataract surgeries in 2017 at seven regional public surgical services across Western Australia. There were a total of 366 cataract surgeries performed on 315 patients (median age of 65.2 ± 11.1 years, 53.7% [n = 169] were male). Half of these (49.8% [n = 157] identified as Aboriginal. Indigenous Australians were significantly younger at time of surgery and were more likely to have diabetes mellitus and diabetic retinopathy ($P < 0.001$) but did not have significantly different waiting times (see Table 1). Diabetes mellitus was a comorbidity for 38.7% (n = 122) of patients, who were more likely to be female ($P < 0.001$) and have worse preoperative best-measured visual acuity (BMVA) (34.6% of those with diabetes vs 52% of those without diabetes had BMVA ≥0.30 logMAR, $P = 0.007$).

Of the 366 cases, diabetic retinopathy was the most prevalent preoperative ocular comorbidity (15.8%, n = 58). Diabetic macular oedema was present in 55.2% (n = 32) of these. Other comorbidities included glaucoma/ocular hypertension (5.2%, n = 19), age-related macular degeneration (3%, n = 11) and pseudoexfoliation syndrome (2.7%, n = 10). Six percent (n = 23) of cases were noted to have previous trauma. Ocular trauma is the leading cause of monocular blindness in Indigenous adults in Australia.[3]

Significant improvements in vision were demonstrated with low complication rates. Median logMAR (interquartile range) preoperative BMVA was 0.50 (0.3-2.0) for Indigenous individuals and 0.30 (0.2-0.6) for non-Indigenous individuals. Twenty percent (n = 66) of cases had BMVA of 1.00 logMAR or worse. Postoperatively, 84.6% eyes achieved 0.30 logMAR or better, while 4.7% had a resulting BMVA of 1.00 logMAR or worse; however, data was not available for 178 cases. There was a significant median improvement in BMVA of 0.3 (0.1-0.6) logMAR units ($P < 0.001$). Ethnic group or diabetes status did not significantly affect the change in BMVA (Table 2). Intraoperatively, 11.2% (n = 41) of cases received an intravitreal injection and 7.9% (n = 29) of cases received a toric intraocular lens. Intraoperative adverse events included vitreous loss/anterior vitrectomy (2.5%, n = 9). No cases required transfer to a tertiary referral centre. There were no cases of endophthalmitis or "dropped nucleus."

The use of telehealth for the preoperative consultations shortened waiting times. The telehealth process involves the optometrist providing ocular examination findings and appropriate imaging, thus enabling a history and surgical consent process via videoconference for a direct surgical booking, bypassing the outpatient clinic pre-assessment. The median time between referral and first cataract surgery was 163 (96-259) days. Almost one-fifth of cases (19.1%) had surgery booked via telehealth, resulting in shorter waiting times between referral and cataract surgery—111 (63-165) median days in telehealth group vs 201[121-292] days ($P < 0.001$). Tele-ophthalmology targets geographical remoteness and workforce distribution issues, leading to increased service accessibility and reduced travelling cost and time for both patient and practitioner. Telehealth use did not have any statistically significant effect on postoperative BMVA. An audit and cost analysis conducted in Western Australia demonstrated overall cost savings to the health care system.[4]

Indigenous Australians had worse preoperative visual acuities and presented younger. High levels of diabetic retinopathy as well as prior ocular trauma may potentially limit postoperative outcomes. This audit was in a public setting with senior registrars performing the majority of the surgery under supervision. Surgical training opportunities need careful assessment and evaluation in rural areas given the complexity and late presentation of patients with cataract as well as limitations in postoperative follow-up opportunities. Overall these results compare favourably to a previous audit conducted in a similar population.[5]

TABLE 1 Patient characteristics by ethnicity

Variable	Indigenous Australians	Non-Indigenous
Number (%)	157 (49.8)	73 (23.2)
Age at time of surgery (y)	62.4 ± 10.7	68.5 ± 10.4**
Days between referral and first surgery	197 [100-308]	162 [112-229]
Female (%)	56.7	32.9*
Age of females at time of first surgery (y)	62.2 ± 9.1	71.7 ± 8.8**
Diabetes mellitus (%)	61.1	16.4**
Any retinopathy (%)	29.9	1.4**

*$P < 0.01$.; **$P < 0.001$ when compared to Indigenous Australians (excluding individuals with ethnicity not specified).

TABLE 2 Cataract surgery cases by ethnicity

	Indigenous Australians	Non-Indigenous
Number of cataract surgery cases (%)	171 (46.7)	89 (24.3)
BMVA preoperatively (%)		
6/12 or better	34.6	56.0*
<6/12-6/60	37.1	32.1
6/60 or worse	28.3	11.9*
Change in BMVA (%)		
Worse by at least two lines	4.5	1.8
Change less than two lines	29.2	26.8
Improved by at least two lines	66.3	71.4
Used telehealth (%)	6.4	20.2*

Abbreviations: BMVA, best-measured visual acuity.
*$P < 0.01$ when compared to Indigenous Australians (excluding individuals with ethnicity not specified).

The addition of telehealth services has improved access to surgery by reducing waiting times significantly. Visiting outreach ophthalmology services to rural and Indigenous communities in Western Australia provide improved access to effective and safe vision-restoring surgery.

CONFLICT OF INTEREST

None declared.

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