Surgical planning during a pandemic: Identifying patients awaiting cataract surgery who are at high risk of severe disease or death due to COVID-19 in a cohort of patients undergoing cataract surgery.

Belfast Health and Social Care Trust
caring supporting improving together

Stuart M [1,2], Mooney C [1,3], Hrabovsky M [1], Silvestri J [1], Stewart S [1]

1. Department of Ophthalmology, Belfast Health and Social Care Trust
2. School of Medical Sciences, University of Manchester
3. School of Medicine, Dentistry and Biomedical Sciences, Queen's University Belfast

Background

The delivery of cataract surgery during the early phase of the COVID-19 pandemic was challenging because of the risk of nosocomial SARS-CoV-2 infection when patients attended hospital for elective care. In order to ascertain the risk to patients awaiting cataract surgery, we sought to identify the presence of systemic co-morbidities that are associated with a high risk of severe disease or death due to COVID-19.

Methods

A prospective study of 630 eyes of 315 patients was conducted from 3rd June to 31st July 2020. An electronic health record was used to identify any systemic co-morbidities that would render a patient 'clinically extremely vulnerable' to COVID-19, as outlined by the Department of Health for Northern Ireland (Table 1).[1]

Table 1: Clinical reasons for being at high risk of severe disease or death due to COVID-19

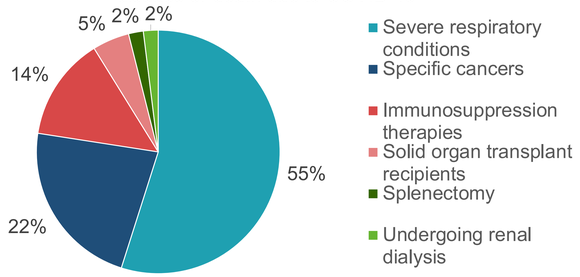
Undergoing renal dialysis	Immunosuppression therapy	Severe respiratory condition
Solid organ transplant recipients	Rare disease and inborn errors of metabolism	Pregnant with significant heart disease
Motor neurone disease	Splenectomy	Specific cancers

For patient identified as being at high risk of severe illness or death due to COVID-19, surgery was typically deferred until after 31st July 2020, when the incidence of COVID-19 had decreased and public health guidance was adjusted accordingly.[2] Patient demographics, best-corrected visual acuity (BCVA) and risk of postoperative anisometropia were also recorded. Cases were also graded 1-4 according to the anticipated degree of surgical difficulty (DSD), with grade 4 reserved for the most challenging cases with a higher risk of complications.[3]

Results

The mean age of patients awaiting cataract surgery was 76 years (range 22-97). Of the 315 patients, 72% were aged over 70, and 16% were aged over 85. A systemic comorbidity that would confer high risk status was identified in 21% of patients. This high risk status was attributable to severe respiratory disease, cancer, and immunosuppression therapies in the majority of cases (Fig 2).

Figure 2: Clinical reasons for being at high risk of severe disease or death due to COVID-19



The high risk group were younger than those deemed non-high risk, but there were no significant differences with respect to gender, anticipated degree of surgical difficulty (DSD) , VA, or whether the patient was undergoing first or second eye surgery (Table 1). Of those patients awaiting first eye cataract surgery, the mean VA in the listed eye was 0.84 logMAR (6/38 Snellen acuity) and 39% (70/179) had a VA <0.3 logMAR (6/12 Snellen acuity) in their fellow eye.

Table 1: Comparison of high risk and non-high risk patient

Variable	High risk group (n= 66)	Non-high risk group (n= 249)	p value**
Age (years)*	72± 8.9	76±11.3	0.003
Male (%)	45	48	0.55
1st eye	52	58	0.22
DSD: Grade 3 or 4 (%)	14	16	0.59
VA in listed eye*	0.83 logMAR± 0.90	0.81 logMAR± 0.83	0.83

*Mean + standard deviation **Chi-square test for frequency values and t-test for mean values

Conclusion

One-fifth of patients awaiting cataract surgery were found to be at high risk of severe disease or death from COVID-19 and these patients were likely to experience delays in their surgical care. Additional planning is required in order to minimise the morbidity associated with delayed cataract surgery.

References

1. Department of Health for Northern Ireland. Coronavirus (COVID-19): definitions of 'clinically extremely vulnerable' and 'vulnerable'. [Internet]. Available from: https://www.nidirect.gov.uk/articles/coronavirus-covid-19-definitions-clinically-extremely-vulnerable-and-vulnerable#toc-0 [Accessed 25 November 2020].
2. Henry P, Donachie J, Sparrow JM. Year 5 Annual Report-The Fourth Prospective Report of the National Ophthalmology Database Audit. . [Internet]. Available from: https://www.nodaudit.org.uk/u/docs/20/hqsrgmurnv/NOD%20Audit%20Full%20Annual%20Report%202020.pdf [Accessed 30 November 2020].
3. Eyecare Scotland, NHS Scotland. National Ophthalmology Workstream: Hospital Eye Services Progress, Priorities & Practical Actions for A Safe, Sustainable Service across Scotland A Safe, Sustainable Service across Scotland. [Internet]. Available from: https://www.gov.scot/binaries/content/documents/govscot/publications/corporate-report/2017/04/national-ophthalmology-workstream-hospital-eye-services/documents/00516753-pdf/00516753-pdf/govscot%3Adocument/00516753.pdf [Accessed 5 December 2020].