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In March 2020 there were 7.7 billion people in the world, 1.2% (95 million) of whom suffer from advanced cataract.

According to the “Global estimates of visual impairment: 2010” report by the WHO [1] the number of people visually impaired worldwide was estimated to be 285 million, of whom 39 million were considered to be blind. While lens opacities ranked as the second major cause of visual impairment (33% of cases), this was just behind uncorrected refractive errors (43% of cases). It is also worth noting that cataract was defined as the leading cause of blindness worldwide, accounting for more than half (51%) of all cases. In 2020 the report of the “Lancet Global Health Commission on Global Eye Health: vision beyond 2020” [2] showed that these rankings did not change. The leading causes of blindness remained cataract with around 17 million cases, and lens opacities were still the second major cause of “moderate and severe vision impairment” (MSVI, defined as Snellen VA between 6/18 and 3/60) affecting around 83.5 million people globally. While cataract is a curable disease in most parts of the world, the access to safe surgical procedures for cataract extraction still varies throughout the globe. Unfortunately, there are few reliable figures on the global frequency of cataract and most reports are based on estimates. This is partly because it often occurs with other age-related diseases and the contribution of lens opacity to vision impairment is difficult to assess. Secondly, the surgeries are performed by different national health care frameworks in different countries, whose data may be difficult to combine.

Recently, a review article published by Hashemi et al. [3] attempted to address the gap of scarce epidemiological data. Its aim was to estimate regional and global prevalence of the disease and consisted of a comprehensive systemic review and

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meta-analysis of 9922 articles and 45 studies, resulting in a sample size of over 160,000 of patients from all around the world. The study concluded that out of 1000 randomly chosen people, between 133 and 210 people were expected to have cataract (CI = 95%), increasing at ages above 60 years, unsurprisingly. A WHO-Region subgroup analysis conducted, with six distinctive regions, highlighted the geographic heterogeneity of the disease. The highest rate of “age-standardized pooled prevalence estimate” (ASPPE), which the authors used as the main index for comparison, was 37% in southeast Asia. Prevalence of cataract in the Eastern Mediterranean region was reported to be 6% higher in comparison with the Americas or southeast Asia in contrast to Europe.

The aforementioned report by the Lancet Global Health Commission [3] confirmed the higher prevalence of cataract in Oceania, south and southeast Asia. As might be expected, in these regions the prevalence of cataract blindness is also remarkably elevated. Lens opacities are responsible for roughly half of all-cause blindness. Both economic factors, reflected in reduced access to surgery, and environmental factors, such as UV radiation combined with higher levels of outdoor activity, are believed to be responsible for this increased prevalence. Racial and ethnic variances may also contribute to this interregional dissimilarity. Despite increasing numbers of cataract procedures worldwide, the global ASPPE is expected to rise further, primarily due to demographic changes.

Twenty-five million cataract surgeries are performed worldwide every year. While the population demographics for developed countries shifts to older life expectancies, the number of patients living with cataract has not increased in recent years due to increased surgical activity. Overall, the numbers denote a high burden of treatable and preventable cases of visual impairment and blindness. Being a major global health issue, cataract needs to be addressed continuously, despite or especially because it is treatable.

A key factor influencing a countries operation rate is the indication of when to operate. In more developed countries where many seniors drive their own car, visual acuity of 6/9 may be an indication for surgery [4]. In such countries, the surgery rate may be more than 12 per thousand. If a cutoff of 6/18 is used as an indication for cataract surgery, only 3 per thousand inhabitants are operated [5]. Taking Germany as an example, the annual surgery rate is 15 operations per 1000 inhabitants. In 5% of all cataract procedures, special lenses are implanted (60,000 per year), half of which are toric and half multifocal, with half of those again being toric-multifocal. An emerging trend is that in some situations, the lens extraction is performed on clear lenses, before the appearance of cataract or on “near-clear” lenses. This is primarily performed from refractive purposes. Approximately 30,000 of these refractive lens exchanges are performed annually in Germany [6].

In recent years there have been initiatives to centralize and register cataract procedures on a continental level, the most established of which is the “European Registry of Quality Outcomes for Cataract and Refractive Surgery” (EUREQUO). Unfortunately, from an epidemiological point of view we are still far from being able to assess the exact incidence or prevalence of the disease, since not all procedures are being reported. Despite this, during a 10 year period (from January

2008 to December 2017), over 2.7 million cataract surgeries were recorded. However, Lundström et al. [7] were able to show that certain parameters, such as mean age (from 74.5 to 73.0 years) or the proportion of women (from 60.6 to 57.2%), also changed over the decade.

## References

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