

Epidemiology of Cataract

Dr Simon Barnard

Measures of disease frequency

- For epidemiological purposes the occurrence of cases of disease must be related to the "population at risk" giving rise to the cases
- Several measures of disease frequency are in common use

Incidence

- The incidence of a disease is the *rate at which new cases occur in a population during a specified period*
- For example, the incidence of thyrotoxicosis during 1982 was 10/100 000/year in Barrow-in-Furness compared with 49/100 000/year in Chester
- When the population at risk is roughly constant, incidence is measured as:

$$\frac{\text{Number of new cases}}{\text{Population at risk} \times \text{time during which cases were ascertained}}$$

Prevalence

- The prevalence of a disease is the *proportion of a population that are cases at a point in time*

Demography

The scientific study of human populations especially with reference to their size, structure, and distribution

When is a lens change a cataract ?

- UK studies often use VA $\leq 6/12$ (e.g., Minassian, 2000)
- “lens changes” are present to some degree in most adults
- Senile cataract appears to have earlier onset in certain areas in Africa than in other parts of the world, with incidence becoming significant in the 40-50-year age group
- In a certain population group in Nepal, clinically significant cataract apparently starts at about 35 years of age

Cataracts in UK present in

- 5% age 55-64
- 40% > 40 years

WHO (2000) estimated

- Of 40-45 million blind (VA $< 3/60$) worldwide, cataract accounted for 20 million (48%)

Prevalence of cataract Incidence in the UK

In England & Wales, Minassian et al (2000), estimated that 1.12 million new cases expected over a five year period

Number of cataract operations England & Wales

(Source: Department of Health)

A total of 132,866 cataract operations were performed on patients 65 and older, between 1994 and 1995

Backlog of cataract causing visual impairment (VA $\leq 6/12$) & No. of new cases expected over 5 year period, for population aged 65 + in England and Wales (Minassian et al 2000)

Cataract causing visual impairment:

Cataract Surgical Rate (CSR)

- No. of cataract operations performed each year per million inhabitants is referred to as the Cataract Surgical Rate (CSR)
- 100 in Nigeria and 450 in Kenya
- 3,100 in India
- 3,800 in the UK
- 5,500 in USA
- 6,300 in Australia

Racial differences

- The pattern of blindness in Baltimore appears to be different among blacks and whites
- Whites far more likely to have age-related macular degeneration, and blacks to have primary open-angle glaucoma
- High rate of unoperated cataracts among younger blacks and among elderly subjects of both races suggests that health services are underused (Sommer et al, 1991)