



Population Prevalence, Pattern and Associated Factors for Retinal Diseases at High Altitude in Nepal

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BACKGROUND

Retinal diseases are the leading causes of blindness globally. Retinal diseases have been rapidly increasing in low middle income countries due to ageing and changing life styles. Retinal diseases are common at high altitudes due to a cascade of changes caused by hypoxia. The aim of this study is to assess the population prevalence, pattern and associated factors of retinal disorders at high altitude in Nepal.

METHODS

A cross-sectional study was conducted at three selected high-altitude districts namely Mustang, Manang and Solukhumbu districts (over 2500 meters) of Nepal. Subjects residing at the height of over 2500 meters, 40 years and above were enrolled using simple random sampling. The target sample size was 309. A detailed history was taken. Visual acuity, blood sugar, blood pressure, and oxygen saturation were measured. Anterior and posterior ocular evaluations were conducted by retina specialists using slit lamp and indirect ophthalmoscopy.

Data collection was done using electronic software (Open Data kit) and transferred to Microsoft Excel for cleaning and coding. SPSS Version 20 was used for statistical analysis. Results were considered statistically significant if the P-value was less than 0.05. Data collected are stored in password-protected computer for data safety. Ethical approval of the study was taken from the Nepal Health Research Council.

RESULTS

A total of 338 participants were recruited, with nearly equal numbers from the three districts.

The mean age was 57 years (11.1 S.D).

Two-thirds (63.9%) were females, 38.2% were illiterate, and 46.7% were farmers.

Average blood oxygen saturation was 87.2% (S.D 4.1%).

Systemic hypertension and diabetes mellitus were found in 58% and 11%, respectively.

Bilateral involvement of retinal diseases was found in 157 (46.9%).

The multivariate analysis showed significant association of retinal diseases with age and hypertension. Best corrected visual acuity better than 6/18 was present in 96.7%.

Awareness on major retinal diseases was ranged from 4.4% on Diabetic retinopathy, 5.6% on age-related macular degeneration, 10.7% in high altitude retinopathy and 23.8% on hypertensive retinopathy.

IMPLICATIONS

Over half of the study participants had retinal diseases. Hypertensive retinopathy followed by high altitude retinopathy, AMD, BRVO and DR were the major retinal diseases. A significant association of retinal diseases was found with ageing, and hypertension.

Timely eye check-up, timely detection and control of systemic diseases like diabetes and hypertension, enhance awareness on eye diseases, and access to eye care services in the remote and rural high altitude areas are mandatory to reduce the avoidable blindness. Data will be useful for further policy and planning of blindness intervention activities.



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