PLASMA AND AQUEOUS HUMUR ASCORBIC ACID LEVELS IN PEOPLE WITH CATARACT FROM DIVERSE GEOGRAPHICAL REGIONS OF NEPAL

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Abstract. Ascorbic acid in aqueous humor of the eye has a role as an antioxidant in delaying cataract formation. In a cross-sectional comparative study, ascorbic acid levels from aqueous humor and venous blood obtained from patients with cataracts in mountainous regions (1,300-2,000 meters) and subtropical lowlands (<100 meters) of Nepal were measured spectrophotometrically with the objective of comparing the levels of aqueous humor ascorbic acid in patients with cataracts from these two diverse geographical regions. Of 131 patients included in the study, 59 were from the mountainous region of Nepal (Group A) and 72 were from the subtropical lowlands (Group B). The mean (± SD) plasma ascorbic acid level (mg%) of the subjects in Group A was 0.65 (± 0.20) and Group B was 0.85 (± 0.31). The aqueous ascorbic acid levels ranged from 12-28 mg % (mean ±SD = 17.5±4.52) and 14-50 mg % (mean ±SD =23.47±8.66) in Groups A and B, respectively. The difference of the plasma and aqueous humor ascorbic acid levels between the two groups was statistically significant ($p<0.01$). The plasma and aqueous humor ascorbic acid levels in the people with cataracts from the mountainous region of Nepal were significantly lower than those from subtropical lowlands. This may be because of the effect of high altitude and ultraviolet rays on ascorbic acid metabolism.

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