Effect of Calcium and Phosphorus Metabolism on Static and Dynamic Pupillary Responses: Prospective Cross-Sectional Study.

- **Source:** Turkiye Klinikleri Journal of Ophthalmology . 2023, Vol. 32 Issue 2, p67-73. 7p.

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Objective:

- To investigate the effects of serum calcium and phosphorus levels on static and dynamic pupillometry measurements in patients with postoperative hypoparathyroidism.

Material and Methods:

- Pupillometry measurements were undertaken by using an automatic pupillometry to detect high photopic, low photopic, mesopic, scotopic pupil diameters with amplitude, latency, duration and velocity of pupil contraction and dilatation. Duration of hypoparathyroidism and serum parathyroid hormone (PTH), calcium and phosphorus levels were recorded.

Results:

- This study included 46 female patients with postoperative hypoparathyroidism and 61 healthy female participants. There were no significant differences between the pupil diameters at different light intensities between the study groups (p>0.05 for all). Among the dynamic pupillometric measurements, pupil contraction amplitude was significantly higher in patients with postoperative hypoparathyroidism when compared to that of healthy controls (1.85±0.04 mm vs 1.72±0.03 mm respectively, p=0.018). There was no significant correlation between the duration of hypoparathyroidism, serum calcium, phosphorus, and PTH levels with static and dynamic pupillometry values (p>0.05 for all), with an exception of a positive correlation between the serum calcium level and amplitude of contraction (r=0.322, p=0.029).

Conclusion:

- Pupil diameters at different light intensities were not affected in patients with postoperative hypoparathyroidism, but pupil contraction amplitude was higher than in healthy individuals.
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