PAEDIATRIC OPHTHALMOLOGY & STRABISMUS

SURGERY OUTCOME MODELLING IN CONCOMITANT ESOTROPIA TREATMENT - A PILOT STUDY

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Background: Many surgical formulas have been developed and proposed based on the experience of surgeons to improve the predictability of strabismus surgery. However, the consent among strabismus surgeons regarding the dose effect of the extra-ocular muscle recession or resection was not achieved yet and the disagreement about the appropriate amount of strabismus surgery still exists. Our study aimed to propose to elaborate an postoperative angle of deviation (PAD) predictive model using simple potential predictors for esotropia treatment.
Methods: The analytical prospective clinical study was conducted from April 2016 to July 2019, on a sample of 160 patients (aged between 2–58) with concomitant esotropia who underwent strabismus surgery in Clinical Republican Hospital ”Timofei Mosneaga” and Children Hospital "Emilian Cotaga" from Republic of Moldova. The correlations of patients' age, strabismus type, amblyopia degree, RsL, RcL, preoperative angle of deviation (PreAD) with PAD were estimated using Pearson's correlation analysis. Multiple linear regression analysis, multi-collinearity analysis, model stability (bootstrapping 1000 samples) and residual analysis were performed.
Results: Correlation analysis named to identify potential predictors for esotropia surgery outcome revealed the following significant associations with preoperative angle of squint (p ≤0.001. effect size 0.06). amblyopia degree (p ≤0.001 (effect size 0.32) and EOM recession amount (p= 0.24. (effect size 0.31). PAD modeling showed the PreAD, EOM RsL and EOM RcL predictive ability for esotropia surgery outcome prediction.
Conclusions: In our study we propose a mathematical models as potential instruments for postoperative angle of deviation modelling in esotropia surgery. The correlation analysis of the factors associated with postoperative drift after 6 months of follow-up.