VISION QUALITY AFTER FEMTO-LASIK PREDICTION MODEL DEVELOPMENT

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Purpose: To develop a multivariate mathematical model for prediction of vision quality impairment after myopic femto-LASIK (laser-assisted in situ keratomileusis with femtosecond laser-assisted flap formation) with standard aspheric (SA) and wavefront-guided (WFG) ablation protocol. Methods: Data of 151 patients (302 eyes) with myopia and myopic astigmatism that undergone femto-LASIK (excimer laser platform – VISX STAR® 4 IR; femtosecond laser platform – IntraLase® FS 60; both by AMO®, USA) procedure (101 – SA, 50 – WFG) was analysed. It included full ophthalmic anamnesis with complaints of vision quality not connected with visual acuity (VA), uncorrected VA (UCVA) and best spectacle corrected VA (BSCVA) measurement and aberrometry (WaveScan WaveFront® System by AMO®, USA) before and 6 months after the operation. Prediction of vision quality impairment was performed by the method of logistic regression based on preoperative data, univariate and multivariate analysis with backward step-down variables selection. Prognostic nomogram was developed for the model use convenience. Nomogram accuracy was estimated by concordance index and calibration plot. Results: Seven parameters were included in the resulting model after uni- and multivariate analysis. Predictive accuracy of the model amounted to 75,7% and the probability of vision quality impairment could be represented by the nomogram in the range of 0,05% – 99,0%. Conclusions: The developed multivariate mathematical with graphical nomogram can improve the communication between a doctor and a patient on preoperative stage by predicting vision quality impairment after myopic SA and WFG femto-LASIK. NO financial disclosure.