PURPOSE
To investigate the refractive outcomes of intraocular lens (IOL) power calculation by ray-tracing after myopic excimer laser surgery.

DESIGN
Prospective, interventional case series.

METHODS
setting: Multicenter study. participants: Twenty-one eyes of 21 patients undergoing phacoemulsification and IOL implantation after myopic laser in situ keratomileusis or photorefractive keratectomy were enrolled. intervention: IOL power calculation was performed using internal software of a Scheimpflug camera combined with a Placido disc corneal topographer (Sirius; CSO). Exact ray-tracing was carried out after the axial length (measured either by immersion ultrasound biometry or partial coherence interferometry), target refraction, and pupil size had been entered. main outcome measures: Median absolute error, mean absolute error, and mean arithmetic error in refraction prediction, that is, the difference between the expected refraction (as calculated by the software) and the actual refraction 1 month after surgery.

RESULTS
The mean postoperative refraction was $-0.43 \pm 1.08$ diopters (D), with a range between $-1.28$ and $0.85$ D. The mean arithmetic error was $-0.13 \pm 0.49$ D. The median and mean absolute errors were $+0.25$ D and $0.36$ D, respectively. Also, 71.4% of the eyes were within $\pm 0.50$ D of the predicted refraction, 85.7% were within $\pm 1.00$ D, and 100% within $\pm 1.50$ D.

CONCLUSIONS
Ray-tracing can calculate IOL power accurately in eyes with prior myopic laser in situ keratomileusis and photorefractive keratectomy, with no need for preoperative data.