Unilateral Blepharoptosis and Hering’s Law
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Objectives: This study evaluates the effect of unilateral blepharoptosis repair on contralateral eyelid position in relation to Hering’s law.

Background: Hering’s law of equal innervation postulates that equal and simultaneous innervation is sent to paired yoke muscles. Although Hering described his law of equal innervation to the extraocular muscles, later observers have sought to apply Hering’s law to the levator palpebrae superioris.  

Methods: Fifty-four patients (21M, 33F; mean age 65 years) who underwent levator advancement surgery for acquired good-function unilateral blepharoptosis were retrospectively evaluated for postoperative change in contralateral upper eyelid position. Margin-reflex-distance (MRD) measurements taken between one week and six months postoperatively were averaged. Change in MRD was compared between subjects that on preoperative evaluation did (n=18) and did not (n=36) demonstrate clinically observable eyelid height interdependence, defined as elevation of the ptotic lid resulting in a decrease in contralateral eyelid height, consistent with Hering’s Law, using two-sample t-test.

Results: Following unilateral blepharoptosis repair, the mean (+ standard deviation) change in contralateral MRD was -0.2 ± 0.8 mm. There was no significant difference in contralateral MRD change in subjects with and without preoperative Hering’s dependence, -0.3 ± 0.8 mm vs. -0.2 ± 0.9 mm, respectively (p=0.78). Seventeen percent (9/54) of patients had a contralateral MRD decrease greater than 1 mm. Three patients (5.6%) required contralateral blepharoptosis repair within one year of initial surgery.

Conclusions: Following levator advancement for unilateral blepharoptosis, roughly 17% of patients had a decrease in contralateral eyelid height greater than 1 mm. Although this is likely a result of alterations of neural input consistent with Hering’s law, the degree of change in contralateral eyelid height was not reliably predicted by preoperative assessment of eyelid height interdependence.

References:

Keywords: Hering’s law, blepharoptosis, eyelid