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Patient-assessed health state utility of facial port-wine stain

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Background: Port-wine stains (PWSs) are congenital capillary malformations that commonly present in the cervicofacial region along the trigeminal nerve dermatomes. Left untreated, facial PWSs grow in size and depth over time, resulting in significant functional and psychosocial impairment to affected individuals. This study aims to assess the health state utility of untreated facial PWS and laser-treated facial PWS from a patient's perspective.

Methods: Adult facial PWS patients were asked to rank the utility of four randomized health states (monocular blindness, binocular blindness, untreated facial PWS, and laser-treated facial PWS) by means of an online health utility questionnaire consisting of visual analogue scale (VAS), standard gamble (SG), and time trade-off (TTO) techniques. Quality-adjusted life years (QALYs) were calculated using the SG score and a fixed time horizon. Health state utility scores were analyzed using one-way ANOVA with post hoc Tukey HSD for pairwise comparisons.

Results: Among the 33 patients included in our analysis (mean [SD] age, 40.7 [16.2] years; 20 women [60.6%]; 12 men [36.4%]; 1 unknown [3.0%]), VAS, SG, and TTO scores (mean \pm SD) for untreated facial PWS (0.72 ± 0.26 , 0.84 ± 0.18 , 0.80 ± 0.23) ranked significantly higher than those of binocular blindness (0.45 ± 0.24 , 0.64 ± 0.25 , 0.67 ± 0.27 ; $p < 0.001$), while approaching scores of monocular blindness (0.71 ± 0.20 , 0.83 ± 0.18 , 0.87 ± 0.19). The laser-treated facial PWS state demonstrated significantly higher utility scores across all measures ($p < 0.05$), comprising a gain of 3.96 QALYs over the untreated facial PWS state.

Conclusions: This is the first study to apply the health state utility model in demonstrating the patient perspective of facial PWS, which is perceived to be similar to that of monocular blindness, and the efficacy of laser treatment which resulted in a gain of 3.96 QALYs. The simplicity of the health utility questionnaire makes it an attractive tool to facilitate objective comparisons of facial PWS with other aesthetically and functionally compromised conditions.

Recent Publications

1. Aldihan K, Alnasyan A, Albassam A, Alghonaim Y, Aldekhayel S. Comparing the health burden of living with nasal deformity in actual patients and healthy individuals: a utility outcomes score assessment. *Ann Plast Surg.* 2019; 83(4):381–383
2. Abt NB, Quatela O, Heiser A, Jowett N, Tessler O, Lee LN. Association of hair loss with health utility measurements before and after hair transplant surgery in men and women. *JAMA Facial Plast Surg.* 2018; 20(6):495–500
3. Faris C, Tessler O, Heiser A, Hadlock T, Jowett N. Evaluation of societal health utility of facial palsy and facial reanimation. *JAMA Facial Plast Surg.* 2018; 20(6):480–487

Biography

Alyssa Heiser is currently a fourth-year medical student at the Larner College of Medicine. She conducts research focused on quality-of-life outcomes in patients with vascular anomalies, particularly port-wine stains, under the direction of Oon T. Tan, MD, PhD at the Carolyn and Peter Lynch Center for Laser and Reconstructive Surgery at Massachusetts Eye and Ear / Harvard Medical School. Her research interests include medical education and mentorship, surgical and non-surgical aesthetic and quality of life outcomes, health economics, and facial plastic surgery.

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