Objective: To determine the impact on voice quality and life quality by vocal fold collagen augmentation in patients with hypophonia associated with Parkinson’s disease (PD) and other parkinsonism disorders.

Design: We conducted structured interviews of patients and their caregivers following injection procedures. A voice quality questionnaire was developed to quantify the change in voice characteristics after treatment. The Glossy Benefit Inventory (GBI) was used to quantify the change in quality of life after treatment.

Results: A total of 12 patients (7 males, 5 females; average age 73.7±8.6 years) completed the questionnaire having an average of 3.0–1.5 collagen injections at the time of the interview with an average of 12.9±7.2 between each injection. The mean value for six voice quality questions ranged from 3.1–4.2 (a scale of 1 (negative effect) to 5 (positive effect) with 3 being no change. Mean GBI total benefit score and GBI social subscore showed significant improvements (p<0.004). On average, patients reported benefit was highest in volume, breathy quality, and speech and voice quality for more than one year after the injection procedure. There was a significant correlation between duration of injection and satisfaction and between patient satisfaction and GBI general subscore (r = 0.53, p < 0.05). Neither the mean GBI general subscore nor the mean GBI physical health subscore were statistically significant (r = 0.08).

Conclusion: The results of this pilot, exploratory study provide evidence that collagen injections into vocal folds improves voice and quality of life in patients with PD. Interestingly, all patients responded better than “no change” (score of 3) indicating beneficial response after the collagen augmentation procedure. Voice volume was robust. Thus, duration of benefit is key to improving overall quality of life and voice function. This pilot study suggests that collagen injection may improve voice and quality of life in patients with idiopathic PD. The beneficial effects lasted an average of 12 weeks and there were no major complications. Seventy-five percent of the patients reported positive feelings towards the procedure (high marks for increasing voice loudness, clarity, intelligibility, and quality and each item was rated on a scale of 1 (negative effect) to 5 (positive effect) with 3 being no change).

Tolerability	 4.3 ± 1.1 2.0–5.0
Overall satisfaction	 3.2 ± 1.2 1.0–5.0
Day of improvement noted	 4.9 ± 4.0 0.0–5.0
Duration of improvement (weeks) 7.6 ± 8.5 0.0–25.7
* 0 = Immediate improvement

The effects of the injection are seen in three bands of average approximately 7 weeks plus or minus 2 weeks, within the range of which patients experienced their best voice. Of the 12 patients, 4 reported dynamic improvement within the first 4 weeks, 7 within 4–12 weeks, 11 within 12–24 weeks, and 8 within 24–36 weeks after the collagen injection. The data was also analyzed using SPSS V15.1.6 and 10 patients reported a mean value of the voice volume change (each item was used to score the changes 1 (negative effect) to 5 (positive effect)).

Table 4. Tolerability, Satisfaction and Duration of Improvement After Collagen Injections (N = 12) *

Table 3. The Glasgow Benefit Inventory (GBI) Scores (N = 12)

Table 2. Voice Quality Ratings After Collagen Injections (N = 12) *

Table 1. Patient Demographics (N = 12)