ABSTRACT

Objectives: The Vocal fold requires an ideal viscoelasticity for rapid mucosal vibration during phonation. Vocal fold scarring is an intractable state characterized by the deposition of disorganized collagen and elastin bundles and loss of hyaluronic acid in lamina propria. It occurs as a consequence of inflammation or injury. We have shown that local injection of basic fibroblast growth factor (bFGF) has therapeutic potential for vocal fold scarring. The current study aims to clarify the preventive capacity of bFGF against scarring by local application at the same time of vocal fold injuring.

Methods: Sprague-Dawley rats (n=20) were anesthetized and bFGF with different concentrations (100 ng/10 µL, 10 ng/10 µL, 1 ng/10 µL of saline only) was injected in the thyroarytenoid muscle, then unilateral vocal fold lamina propria was stripped until the thyroarytenoid muscle was exposed. Histological and immunohistochemical studies were performed 2 months after the procedure.

Results: Histological examination showed that hyaluronic acid was significantly increased and collagen was significantly decreased in bFGF -treated group at 100 ng/10 µL compared with sham-treated group. Immunohistochemical examination showed that collagen type III were significantly decreased in bFGF – treated group at 100 ng/10 µL as compared with sham – treated group.

Conclusions: The current results suggest that local injection of bFGF at the time of injury has the potential to prevent vocal fold scarring. Preventive injection of bFGF could be applied at phonomicrosurgery to avoid postoperative scar formation.

INTRODUCTION

To study the preventive effect of basic fibroblast growth factor against vocal fold scarring.

MATERIALS AND METHODS

Methods: Sprague-Dawley Rat (13 wks n = 20)

Results: Histological and immunohistochemical studies were performed 2 months after the procedure.

DISCUSSION

- Local application of bFGF against vocal fold scarring is reported to be effective both in acute and chronic phase.
- Protective effect of bFGF against vocal fold scarring has not been reported, so we tried to confirm it in current study.
- Histological and immunohistochemical studies showed therapeutic effect in bFGF – treated group at 100 ng/10 µL compared with sham – treated group.

REFERENCES