

## Local delivery of phenylephrine into sphincter muscle using hollow microneedles as a treatment of fecal incontinence

박정환\*

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For clinical application, hollow microneedle system was utilized to deliver predetermined dose of PE into muscle locally through perianal skin. Hollow microneedles provides less pain, user convenience and biological safety. The objective of this study was to demonstrate that local PE delivery by local delivery of PE using hollow microneedle system can induce elevation of anal sphincter tone with biological safety.

In the comparison of efficacy among treatment methods, including intravenous administration, subcutaneous injection, Intramuscular injection and local targeting injection using microneedles with same dose of 50  $\mu$ g of PE, hollow microneedle system enhanced the mean resting anal pressure significantly ( $P > 0.05$ ,  $n=5$  respectively. Hollow microneedle-phenylephrine system induced significant contraction of internal anal sphincter at least 6 hours after injection. This new administration system could provide potential treatment of fecal incontinence by painless microneedle injection of PE into perianal skin topically.)