MODERN TECHNOLOGIES IN DYSPHAGIA REHABILITATION

SODOBNE TEHNOLOGIJE PRI OBRAVNAVI MOTENJ POŽIRANJA

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Abstract

Advances in technology over the past decade have contributed to the development of dysphagia rehabilitation. New and innovative tools have been available in dysphagia clinic providing more precise understanding of pathophysiology and promoting the achievement of the eating activity.

For evaluation, swallowing CT is a groundbreaking technology that enables visualisation of swallowing three-dimensionally with excellent space resolution and with sufficient time resolution. 3D dynamic imaging and quantitative measures have resulted in dramatic advances in understanding of complex swallowing physiology and swallowing disorders, to determine clinical management, and for follow-up after treatment.

Kinetically, high-resolution manometry has been frequently utilised to obtain the pressure in pharynx and upper esophageal sphincter (UES) and to assess the pharyngeal driving force during the swallow. Concurrent recordings with videofluoroscopy promotes accurate treatment-oriented evaluation by allowing both kinetic and kinematic analysis.

Throughout the evaluation and treatment, »Swallow Chair« has been developed to adjust postures during swallowing. Accessibility of usage throughout evaluation and treatment solved the problem of reproducibility of recommended postures from evaluation to treatment. Swallow Chair is more than just the tool for compensation, it is the tool for efficiently promoting the improvement of swallowing function.

For treatment, double balloon has been introduced as a promising tool for treating dysphagia associated with cricopharyngeal dysfunction. The device consisting of inner spherical balloon and outer elliptical balloon helps to dilate the UES stricture more stably, efficiently, and non-invasively in swallowing therapy.

Povzetek

Napredek tehnologije v zadnjem desetletju je prispeval k razvoju rehabilitacije pri motnjah požiranja. Za klinično uporabo so na voljo nova orodja, ki omogočajo bolj natančno razumevanje patofiziologije in pomagajo pri doseganju uspešnega hranjenja. Ključna nova tehnologija na področju ocenjevanja je CT požiranja, ki omogoča trirazsežen prikaz požiranja z odlično prostorsko in zadostno časovno ločljivostjo. Trirazsežne dinamične slikovne tehnike in njimi povezane meritve so omogočile bistven napredek pri razumevanju kompleksne fiziologije požiranja in motenj požiranja, kar omogoča boljšo klinično obravnavo in spremljanje po zdravljenju.

Glede kinetike se pogosto uporablja manometrija z visoko ločljivostjo za merjenje tlaka v žrelu in zgornji mišici zapiralki požiralnika (MZP) ter sile potiska požiralnika pri požiranju. Sočasno snemanje z videofluoroskopijo omogoča točno ocenjevanje, usmerjeno v zdravljenje, ki omogoča tako kinetično kot kinematično analizo.

»Požiralni stol« se uporablja skozi celotno ocenjevanje in zdravljenje za popravke drže pri požiranju. Razpoložljivost tega pripomočka skozi celoten potek ocenjevanja in zdravljenja je rešila problem obnovljivosti priporočene drže. »Požiralni stol« je več kot le orodje za nadomeščanje primanjkljajev; je orodje, ki učinkovito pripomore k izboljšanju funkcije požiranja.

Za zdravljenje motenj požiranja, povezanih z disfunkcijo hrustančnega dela požiralnika, se kot obetavno orodje uvaja dvojni balon. Napravo sestavljata notranji kroglasti balon in zunanji elipsoidni balon, ki pri zdravljenju požiranja pomagata razširiti skrčeno MZP bolj stabilno, učinkovito in neinvazivno.

Pred kratkim so uvedli magnetno stimulacijo za spodbujanje mišic nad podjezičnico kot neinvazivno in manj bolečo alternativo električni stimulaciji. Raziskave kažejo, da s periferno

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Most recently, magnetic stimulation has been introduced for promoting the suprahyoid activity as noninvasive and less pain intervention as an alternative to electrical stimulation. Studies are showing the achievement of sufficient hyoid elevation at rest through peripheral magnetic stimulation. Repetitive peripheral magnetic stimulation is expected to promote the hyolaryngeal elevation during swallowing as a new simple muscle strengthening exercise.

In this lecture, I will explain the features of these innovative tools as an assistive system and how to utilise them in swallowing rehabilitation to reconstruct eating.

Key words:
swallowing CT; kinetic and kinematic analysis; Swallow Chair; double balloon; magnetic stimulation

magnetno stimulacijo dosežemo zadosten dvig podjezičnice v mirovanju. Ponavljajoča se periferna magnetna stimulacija naj bi spodbujala dvig podjezično-žrelni dvig med požiranjem kot nova in preprosta oblika vadbe za raztezanje mišic.

Na predavanju bom pojasnila značilnosti teh novih orodij v okviru podpornega sistema in razložila, kako jih uporabljati pri rehabilitaciji požiranja, da obnovimo zmožnost hranjenja.

Ključne besede:
CT požiranja; kinetična in kinematična analiza; »požiralni stol«; dvojni balon; magnetna stimulacija