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Short Communication

Intendent of Functional Rehabilitation in Children Snoring or with Sleep Apnea Syndrome

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Myofunctional re-education gives encouraging results in the treatment of snoring and sleep apnea problems. This is the conclusion of a meta-analysis published recently in the European Archives of Oto-Rhino-Laryngology.

The interest of this approach was confirmed at the last congress of the International Pediatric Sleep Congress in Paris in April 2018 It could be implemented in large children but voluntary control of lingual motor skills is not easily available to young children.

There development of lingual and oropharyngeal therapy was used as the only treatment for apnea and coupled with another therapy. This approach showed its effectiveness, the apnea index was reduced by 50% in adults and by 62% chez in the child.

With regard to snoring, the analysis only concerns adults and it appears that the intensity of snoring is reduced by more than 50% and the duration of the snoring storm decreased by 31%.

The protocol used, however, was tedious, between 50 and 60 minutes of daily exercises divided into three to five sessions over a period of three months and we can perhaps be a man if the protocol of functional rehabilitation took into account all the new data that neuroscience allows us to apprehend.

The modification of the neural circuits managing orofacial praxis can involve either a voluntary approach to rehabilitation or an unconscious approach involving sensitivo-motor movements.

Re-education "is not based on the properties of nerve cells as such but on the nature of the connections between neurons and how they process the sensory information received": learning will consist of drawing new circuits, this plasticity will be done either by reedling existing programs or by creating new ones.

Re-design existing programs (top-down approach).

The patient will first have to become aware of the gesture he is doing and then the gesture he has to perform, the repetition to allow automation. But it is not enough to know what one has to do to be able to do it (see the difficulties of learning a new sport). We are in an intentional repeat learning procedure with sensory-motor adjustment.

Eric Kandel, Nobel prize in medicine in 2000 for his work on the transition from short-term memory to long-term memory, has shown in this approach an increase in the activity of neurotransmitters at the level of the synapses concerned but we remain in the field of short-term memory [1-8].

A light stimulation releases neurotransmitters at the synapse, the nucleus is not concerned we are in short-term memory (weekly speech therapy sessions). This information will only remain available for a fairly short period of time.

If the stimulations are repeated in a short time, (several weekly sessions and daily exercises at home) will create a dialogue between the synapse and the nucleus in order to activate the CREB and produce a new protein, essential for the transition to long-term memory. This new CPEB protein in the synapse will function as a prion and ensure the transmission of the message permanently.

Cyclic AMP Response Element-Binding Protein (CREB) protein that activates the genes responsible for long-term memory.

CREB 1 is CREB 2 inhibitor activator.

CPEB

(Cytoplasmic Polyadenylation Element-Binding Protein) transcription-regulating protein in the synapse that helps stabilize long-term memory.

At the same time, a highly emotional state can short-circuit normal stresses and produce a sufficient amount of MAP-kinase molecules that will be sent to the nucleus to inactivate the CREB-2 molecules and facilitate the activation of CREB-1 and the direct impression of this experience in long-term memory.

Frogmouth is a device that, carried 15 minutes a day for a fairly short time and in front of a television screen (reward recognized by the limbic system), will force the patient to discover a new mode of swallowing by subcortical, thus not by stimulating the activity of neurotransmitters but by creating new synapses. Indeed, no longer able to tighten the lips, he will be unable to swallow suction by suction between anterior mouth and posterior mouth, hence a sudden and immediate reaction at the level of the brainstem: find a new swallowing program.

Faced with a new situation the patient appeals to the schemes at his disposal.

If he does not have a scheme adapted to the new situation he will be forced to create one. This is an incidental and almost immediate learning process.

The concomitant contraction of the mandible's lift muscles in a stable and comfortable dental occlusion, the palate veil and Panglosses will allow for peristaltic movement of the tongue (provided the transverse and vertical anatomical environment is compatible) and the disconnection of lip-tongue synkinesis.

This new swallowing program will be immediately integrated into long-term memory by creating a new neural circuit.

And itis through the dynamic and postural modification of the language that we can have an action on other orofacial functions. Controlling the flow of the motor sequence by the tri-twin nerve will replace the control until the facial nerveisattached. This transfer will then allow the tri-twin by its sensitive root to change the respiratory mode in the pontic tegmentum in cases of oral breathing. This recalls the way the falling dominoes work, the first to fall to the second, which will pass the information on to the third and so on. This influence of a neural circuit on the neighboring circuits maybe related to the presence of numerous synapses on glial cells that were previously perceived as secondary cells. This sequence can continue until the musculature of theory pharynx difficult to re-educable by voluntary.

Conflit of Interest

None.

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