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The effect of botulinum (BTX-A) injection in bone morphology during mandibular advancement in rat

Aim: The aim of this study is to evaluate and determine the morphology changes of the mandible by the injection of botulinum into masseter muscle of growing species during mandibular advancement therapy.

Materials & Methods: Sixty (60) growing male Wistar rats were randomly divided into four experimental groups as following: Functional control; Botox control; Functional and botox experiment. Included samples in experimental groups were fitted by a functional appliance in order to protrude the mandible. Meanwhile, botulinum neurotoxin was injected in masseter muscle of both sides of rats in botox control and botox experimental group. The animals were sacrificed after 4 weeks. Bone imaging was done by cone beam computed tomography (CBCT) in a standardized manner. Selected linear cranial measurements were obtained by device software (NewTom VGi, NewTom Inc., Verona, Italy) and the statistics analysis was processed with SPSS and one-way ANOVA test.

Results: Changes in animal weight during the treatment period were not statistically significant. There were significant differences in all measurements on the samples which botox were included in combination with functional appliance compared with groups that did not received botox during the experiment. The differences included increased length of mandible, length of condyle and condyle to mandibular plane in all samples provided by botox and functional appliance.

Conclusion: The result of the present study revealed a significant treatment outcome in applying botox in addition to functional appliance therapy. Based on the latter, reduced masticatory function affected the mandibular protrusion treatment and the outcome regarding functional appliance therapy in growing patients.

Biography

Negin Sadat Matini has received her DDS degree from Shahid Beheshti Dental School in 2015. She has published 3 PubMed articles and a patent during her undergraduate program. She is the Founder and CEO of Noavadental Research Group, Iran. She has attended many international congresses and she is also a private practitioner and a researcher mostly in orthodontics.

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