Pliability, elasticity of skin increase following wrinkle treatment with Botox

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Skin pliability and elasticity improved after treatment with onabotulinum toxin (Botox) for mild facial wrinkles and the effect lasted for up to four months, according to a report published online by *JAMA Facial Plastic Surgery*.

Human skin has three biomechanical features: strength, pliability (the ability to stretch) and elasticity (the ability to recoil). As people age, these properties change and the loss of skin elasticity appears to be the most prominent. Physicians use a variety of methods to reverse the signs of aging and onabotulinum toxin A injections are among them.

James P. Bonaparte, M.D., M.Sc., F.R.C.S.C., of the University of Ottawa, and David Ellis, M.D., F.R.C.S.C., of the University of Toronto, both in Canada, sought to further understand the effect of onabotulinum toxin A on the skin by studying its effect on 48 women (43 completed the study) treated at a private cosmetic surgery clinic for mild wrinkles of the forehead and around the eyes.

The authors observed that onabotulinum A injections in the facial skin resulted in increased pliability and elastic recoil. These biomechanical changes mimic those of more youthful skin. The mechanism for this skin change is unclear but the effect of the onabotulinum A injections is similar to a radiofrequency skin tightening procedure. However, by four months these improvements returned to how the skin was before treatment.

"The changes occurring in patients' skin appear to be the opposite of those associated with the aging process and UV radiation exposure and inflammation. This study also suggests that the duration of effect of these changes mimics the duration of effect of the medication. Future studies are required to determine and quantify the histologic changes that are occurring," the study concludes.

In a related commentary, Catherine P. Winslow, M.D., of the Indiana University School of Medicine, Bloomington, writes: "The impact of botulinum toxin A continues to undergo evaluation as we attempt to further our understanding of the biochemical impact on the skin. ... Piecing together this research with continued studies on elasticity and collagen content of injected skin will further the ability of facial plastic surgeons to refine their strategy for long-term planning of antiaging strategies with patients and educate them as to the importance of nonsurgical therapies for maintenance, in addition to opening new fields of potential treatment options for difficult scars and skin conditions."

More information: *JAMA Facial Plast Surgery* Published online May 21, 2015. DOI: 10.1001/jamafacial.2015.0376
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