**Solid State Hyaluronic Acid Threads: Final Clinical Results of a Novel Product in Minimally Invasive Facial Rejuvenation**

**Authors:** Grant Stevens, Nowell Solish, Arthur Swift

**Background:** Dermal fillers are effective for temporary volume augmentation, especially for deep features like NLFs. This is due to volume expansion, with relatively little precision in placement. Neurotoxins are effective at treating rhytids, but can have undesirable effects on facial expression. Available fillers and neurotoxins are not always optimal for treating fine or long, linear wrinkles, such as necklace lines, transverse forehead wrinkles, and lip contouring. To address these clinical needs, a novel hyaluronic acid (HA) product has been developed which is comprised of a dehydrated, solid HA thread attached to a 27 gauge straight needle. The HA thread is implanted by being pulled into position by the needle, whereupon the thread hydrates and slowly reverts back to a gel.

**Methods:** A first-in-human prospective multi-center study was conducted in Canada. The primary endpoint was safety, and the secondary endpoints were aesthetic result as assessed by the Investigator, Independent Reviewer, and subject. Photographic documentation was captured by CanfieldScientific. NLFs were rated by a Wrinkle Severity Scale and any other area was rated by a Global Aesthetic Improvement Scale. Subjects received bilateral treatment in one area; NLF, forehead, perioral (including vermillion boarder), necklace lines or crow’s feet. One retreatment was allowed at the 2-week follow-up. Follow-ups were at 1, 3 and 6 months.

**Results:** 72 patients were enrolled and completed this study. At least 10 were enrolled in each of the 5 treatment areas. There were no severe or unanticipated adverse events. Overall, the adverse event rates were comparable or better than published rates for HA dermal fillers. Almost all subjects demonstrated improved aesthetic outcomes despite conservative implantation methods initially. Many subjects demonstrated aesthetic improvement between the 1 and 3month follow-ups.

**Conclusion:** The results from this clinical study demonstrate that HA threads are safe, and can be effective in treating difficult areas such as necklace lines, horizontal forehead lines, vermillion boarders, as well as more common areas such as NLFs and crow’s feet. The product lends itself well to features that are linear in nature, whether fine or deep. HA threads are a highly novel, differentiated product that complements injectable fillers and neurotoxins for minimally invasive facial rejuvenation.