

Needle with a Novel Attachment versus Conventional Screw-Thread Needles: A Preference and Ease-of-Use Test among Children and Adolescents with Diabetes

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Abstract

Background:

This usability test investigated the overall preference and usability of the novel NovoTwist[®] insulin pen needle versus conventional screw-thread needles, when used with Next Generation FlexPen[®], in children and adolescents with diabetes.

Methods:

This was an open-label, randomized, crossover usability test in children and adolescents with type 1 diabetes who administered insulin with an insulin pen. Test needles were NovoTwist and the participant's current screw-thread needle (or NovoFine[®] needle). Following instruction, participants attached the needle to Next Generation FlexPen, made an injection into a foam cushion, and detached the needle. This procedure was conducted three times with both needles in a random order. Responses to 13 questions on user experience with each needle (including overall preference, ease of attachment/detachment of needle/cap, handling, learning, confidence in attachment, and convenience of use) were subsequently recorded on a six-point rating scale (1 = very difficult; 6 = very easy).

Results:

Fifteen children aged ≥ 6 to ≤ 12 years and 15 adolescents aged ≥ 13 to ≤ 17 years participated in the test. A significantly higher proportion of children and adolescents (77%) indicated that they would prefer to use NovoTwist compared with screw-thread needles ($p = .005$). NovoTwist was preferred by most children and adolescents for overall ease of use (77%; $p = .005$), for ease of attachment (87%; $p < .001$) and detachment (83%; $p < .001$), and as the most appropriate needle to handle for daily injections (73%; $p = .016$). The mean rating for confidence in correct needle attachment was not significantly different between the two needle types. Seven out of eight parents of children who required assistance for their daily insulin injections stated that they would be "very likely" to allow their child to attach NovoTwist.

Conclusions:

These factors may promote confidence in this needle, and thus in self-injecting, among younger patients and their parents.

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