Ultrasound Needle Guide

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Technology description

A variable depth ultrasound needle guide for steep trajectories.
Value Proposition:
A two-part ultrasound needle guide system mounted on the end of an ultrasound probe which can be positioned at different locations and angles to guide a needle through the patient’ s skin and advanced to a preselected depth identified on the ultrasound.
Executive Summary:
Problem:Some regional anesthetic procedures, such as paravertebral and lumbar plexus blocks, are difficult to perform using in-plane ultrasound needle guides due to the steep angle of needle entry for the procedure, altered trajectory of the needle, and needle depth issues. As a result, clinicians either do not use ultrasound for these procedures, or “free hand” the needle.
Solution:Andrew Neice, M.D., an assistant professor of Anesthesiology & Perioperative Medicine, identified a need for a needle guide involving very steep needle entry trajectories, and designed a two-part ultrasound needle guide system.A fine degree of control is achieved for regional anesthesia procedures due to an increased number of depths and angles to increase accuracy, precision, and measurement resolution.
Background:
When using ultrasound, regional anesthetic procedures such as lumbar plexus (LP) blocks, commonly used for hip surgeries, and paravertebral (PV) blocks used for surgeries on the breast, lung, and upper abdomen, involve a very steep needle entry trajectory with limited visualization of the needle. For these reasons, most clinicians are reluctant to perform LP and PV procedures. However, both LP and PV blocks have a number of benefits including decreased post-operative pain, opioid consumption, nausea, and time spent in the post-anesthesia care unit. For ambulatory surgeries, PV may reduce admissions due to uncontrolled pain or post-operative nausea. Ultrasound is widely used for regional anesthesia with needle guides designed to perform common procedures, however, it is not the practice of choice for some procedures. A needle guide specifically designed for very steep needle entry trajectories, such as the OHSU device, anticipates an expansion of the ultrasound accessory market in needle guides to other regional anesthesia procedures not now done using ultrasound, such as LP or PV.

Institution

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