Ultrasound Probe and Needle Support Combined in One Medical Device

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Technology description

Maintains Full Needle Visibility for Precise Placement in Operations by a Single Physician

This medical device combines the functions of ultrasound imaging and needle placement by keeping the needle inside the ultrasound beam to maintain needle visibility at all times, thereby enabling operation by a single physician. The global market for medical imaging equipment is projected to exceed $45 billion by 2022. In medical procedures such as peripheral nerve blocks and central venous cannulation, ultrasound imaging helps the physician accurately place the needle, catheter, and guide wire. Physicians typically use their dominant hand to place the needle and their other hand to hold the ultrasound probe against the patient's skin as a guide. Because both of the physician's hands are occupied, a second person must depress the plunger or advance the catheter or guide wire. Researchers at the University of Florida have developed a design for an ultrasound probe with needle support that locks in a desired position. Once the needle is locked in place, the physician can use his free hand to depress the plunger or place the catheter or guide wire. This device allows one physician to perform the procedure alone and accurately, saving time and money while simplifying the procedure.

Technology

This medical device enables a single physician to perform a procedure, which has typically required an assistant. It comprises an ultrasound probe with a connected needle support arm mount. The arm freely adjusts to affix the needle in virtually any desired position, while the needle remains inside the ultrasound beam, fully visible. Once the needle is in the desired position, it can lock in place. This capability is unavailable with free-hand techniques, which are always subject to accidental adjustments. Locking the needle in place reduces potential for error and increases safety for patients. After locking the needle in place, the physician can use his free hand to either depress the plunger on a syringe within the needle or pass a catheter or guide wire through the needle, according to the needs of the procedure.

Application area

Medical device combining ultrasound imaging with needle, catheter, or guide wire placement that enables operation by only one physician

Advantages

Enables solo administration of ultrasound procedures requiring precise needle placement, reducing personnel needs
Locks needle in place, reducing margin of error and increasing safety
Simplifies procedures requiring precise needle placement, saving time and money

Institution

University of Florida

Inventors

Andre Boezaart
Professor
ANESTHESIOLOGY

邮 箱：yeyingsheng@zf-ym.com