Teleflex Reports Study Using Its Arrow® EZ-IO® Intraosseous Vascular Access System Shows Advantages for Medical Emergencies

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Peer-Reviewed, Prospective Study Confirms Intraosseous Access May Provide Faster, More Accurate Vascular Access than Central Venous Catheters for Emergencies Involving Adult Patients

WAYNE, Pa.--(BUSINESS WIRE)--Jul. 29, 2015-- Teleflex Incorporated (NYSE: TFX), a leading global provider of medical devices for critical care and surgery, announced that newly published research has documented important advantages of intraosseous vascular access over central venous catheterization for medical emergencies involving adult patients.[1] The company's ARROW ® *EZ-IO*® Intraosseous Vascular Access System was the intraosseous vascular access device used in the study.

Intraosseous vascular access refers to the process of administering medications or other fluids into the bone marrow to gain a pathway to the body's vascular system. After first being demonstrated in the 1940s, the process has gained new popularity since guidelines from the American Heart Association recommended that providers use it when circumstances make regular intravenous access difficult or impossible.[1]

This peer-reviewed article described a clinical study designed to compare intraosseous vascular access to landmark-guided central venous catheter (CVC) placement during inpatient medical emergencies at a large urban teaching hospital. The study was part of a quality improvement initiative, reporting on intraosseous access for an inpatient rapid emergency team response. The in-press article appears online in the respected journal *Critical Care Medicine*, the official journal of the Society of Critical Care Medicine.

The study involved 79 adults who received central access between February 2012 and July 2013. The events investigated included 79 medical emergency team calls, encompassing 60 non-arrests and 19 cardiac arrests. Of the 79 patients, 31 received intraosseous access with the ARROW® *EZ-IO*® System and 48 received a CVC.

The results demonstrated the benefits of intraosseous access in emergency circumstances in several ways. First-pass success rates with intraosseous access were substantially higher than with the CVC: 90.3% vs. 37.5%. Overall success rates with intraosseous access were superior, as well, with a rate of 96.8% for the ARROW® *EZ-IO*® System and an 81.3% rate for CVC access. CVC placements took significantly longer than intraosseous access – an average of 10.7 minutes compared to 1.2 minutes for the intraosseous route.

In total, mean attempts to place a CVC per patient were almost three times higher than intraosseous attempts (2.8 vs 1.1) and more CVC kits were used on average per patient than intraosseous kits (1.3 vs 1.1). All of the above results were statistically significant.

"As the market leader in vascular access, we continue to partner with clinicians to expand their options for vascular access," said Jay White, President of the Teleflex Vascular Access Division. "Our full line of vascular access solutions provides clinicians with the ability to select the right line for the right patient at the right time, optimizing patient outcomes. This study has done an excellent job demonstrating the benefits of the ARROW® EZ-IO® System during inpatient medical emergencies."

The ARROW® EZ-IO® System was also discussed in a literature review published last year in *Journal of Clinical Anesthesia.* The author, Jonathan A. Anson, M.D., suggests a framework for incorporating intraosseous technique into clinical anesthesia practice and compares currently available technologies. One of the studies described in the review is a seven-year retrospective analysis showing that the battery-powered ARROW® *EZ-IO*® System had a much greater first-attempt success rate (96%) than either a leading impact-driven device (55%) or a manual technique (50%). Other studies included in the review found similar results for the ARROW® *EZ-IO*® System versus the impact-driven system and also demonstrated that the ARROW® *EZ-IO*® was easy to learn and use.

Overall in the studies cited in the review, the ARROW® *EZ-IO*® System had a greater insertion success rate than either of the two leading impact-driven devices. It also had a substantially faster mean insertion time (60 sec.) than the other two devices (86 sec. and 101 sec.) In three prospective studies described in the review involving a total of 130 patients, no infections occurred.[2]

Additional information on the ARROW® *EZ-IO*® System can be found at www.teleflex.com. Clinical education resources on the technology can be viewed at www.teleflex.com/en/usa/ezioeducation/index.html.

About Teleflex Incorporated

Teleflex is a leading global provider of specialty medical devices for a range of procedures in critical care and surgery. Our mission is to provide solutions that enable healthcare providers to improve outcomes and enhance patient and provider safety. Headquartered in Wayne, PA, Teleflex employs approximately 12,200 people and serves healthcare providers worldwide. For additional information about Teleflex please refer to www.teleflex.com.

Forward-Looking Statements

Any statements contained in this press release that do not describe historical facts may constitute forward-looking statements. Any forward-looking statements contained herein are based on our management's current beliefs and expectations, but are subject to a number of risks, uncertainties and changes in circumstances, which may cause actual results or company actions to differ materially from what is expressed or implied by these statements. These risks and uncertainties are identified and described in more detail in our filings with the Securities and Exchange Commission, including our Annual Report on Form 10-K.

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1. Lee PM, Lee C, Rattner P, Wu X, et al. Intraosseous versus central venous catheter utilization and performance during inpatient medical emergencies. *Crit Care Med*, 2015;43(6):1233-38.

2. Anson JA. Vascular access in resuscitation: Is there a role for the intraosseous route? *Anesthesiology* 2014;120(4)1015-31.

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