

© 2019 EDIZIONI MINERVA MEDICA  
 Online version at <http://www.minervamedica.it>  
 Minerva Anestesiologica 2020 May;86(5):574-5  
 DOI: 10.23736/S0375-9393.19.14271-X

## Comparison of two needles for ultrasound guided interfascial plane block by inexperienced operators

Interfascial plane blocks (IPBs) consist of an injection of local anesthetic in an interfascial plane. Various needles for IPBs execution are available but it is not clear if any clinical difference exists among them.

We evaluated two different needles: one (Ultraplex360 22 Gauge, 30° Bevel, 80 mm [Braun, Kronberg im Taunus, Germany]) with higher and one (Stimuplex 22 Gauge, 30° Bevel, 80 mm [Braun, Kronberg im Taunus, Germany]) with lesser echogenic properties while executing an IPB block on a simulator model by inexperienced operators.

We conducted a prospective randomized controlled trial (NCT03448913). An ethical exemption was recognized by the IRB in March 2019. We considered eligible first to third year anesthesiology residents excluding all residents proficient with IPBs (previously executed more than sixteen interfascial blocks).<sup>1</sup>

All participants took one hour theory class on TAP block. Afterwards participants had a familiarization period with the “TAP Block Ultrasound Training Model” (BluePhantom, FL, USA) simulator and half an hour to ask questions regarding both the model and the TAP block procedure. All residents performed two blocks, using both Ultraplex 360 and Stimuplex following a randomized order.

To calculate the required sample size, we considered the time to perform the block to be 6.8±4.1 minutes.<sup>1</sup> Supposing a 30% decrease to be significant the required sample size was 64 (power 80% and significance 0.05); expecting to lose 10% of the subjects during the analysis we chose to include 70 subjects.

Normality of distribution was analyzed using the Shapiro-Wilk Test. Variables were compared using the two-tailed Student's *t*-test or the Mann-Whitney U Test if they were non-normally distributed. Continuous variables are presented as mean±standard deviation. While non-normally distributed variables as median and interquartile range. Variables presented as percentage were compared using the  $\chi^2$  test or the Fisher's Exact test when appropriate.

Statistical analyses were conducted using R 3.4.0 (2017-04-21). P values <0.05 were considered significant.

Seventy residents were enrolled in May 2019 and all data entered the final analysis. Results are reported in Table I.

In this trial Ultraplex 360 proved to be superior to Stimuplex, indeed both procedural duration, satisfac-

TABLE I.—Comparison between the needle.

	Stimuplex	Ultraplex 360	P
Time (s)	88.5 (55)	47 (37.5)	<0.0001
Satisfaction (0-10)	6 (2)	9 (1)	<0.0001
Needle tip (%)	46 (25)	55 (30)	0.001

tion and needle visualization time resulted statistically different.

This is not the first study comparing different needles in a locoregional anesthesia setting<sup>2,3</sup> but this is the first study investigating this issue on IPB.

An ideal needle for ultrasound procedure should have perfect echogenicity at each entry angle, provide a tactile feedback of different tissues and should create low artifacts.<sup>4</sup>

Year by year technology improved to increase this characteristic to its maximum. Unlike the Stimuplex needle, the Ultraplex360 one has a “X-pattern” indentation on its surface that works reflecting the ultrasound wave despite the needle entry angle increasing the needle visibility. Non-experienced users could probably benefit the most: tip visibility is dependant on operator's ability to choose an adequate skin-needle angle and to keep the correct alignment with the probe; however, these skills could be acquired only with experience.<sup>3-5</sup>

Alessandro DE CASSAI \*,  
 Bianca FERRARESE, Annalisa BOSCOLO,  
 Marina MUNARI, Michele CARRON

Section of Anesthesiology and Intensive  
 Care, Department of Medicine (DIMED),  
 University of Padua, Padua, Italy

\*Corresponding author: Alessandro De Cassai, Section of Anesthesiology and Intensive Care, Department of Medicine (DIMED), University of Padua, Padua, Italy.  
 E-mail: [alessandro.decassai@gmail.com](mailto:alessandro.decassai@gmail.com)

### References

- Vial F, Mory S, Guerci P, Grandjean B, Petry L, Perrein A, *et al.* [Evaluating the learning curve for the transversus abdominal plane block: a prospective observational study]. *Can J Anaesth* 2015;62:627–33. French.
- Hebard S, Hocking G. Echogenic technology can improve needle visibility during ultrasound-guided regional anesthesia. *Reg Anesth Pain Med* 2011;36:185–9.
- Deam RK, Kluger R, Barrington MJ, McCutcheon CA. Investigation of a new echogenic needle for use with ultrasound peripheral nerve blocks. *Anaesth Intensive Care* 2007;35:582–6.
- Maecken T, Zenz M, Grau T. Ultrasound characteristics of needles for regional anesthesia. *Reg Anesth Pain Med* 2007;32:440–7.
- Nichols K, Wright LB, Spencer T, Culp WC. Changes in ultrasonographic echogenicity and visibility of needles with changes in angles of insonation. *J Vasc Interv Radiol* 2003;14:1553–7.

**Conflicts of interest.**—The authors certify that there is no conflict of interest with any financial organization regarding the material discussed in the manuscript.

**Authors' contributions.**—Alessandro De Cassai has conceived and designed the presented study alongside Annalisa Boscolo, and he has also performed data analysis, and wrote the manuscript; Marina Munari has made substantial contributions to data interpretation, written and edited the manuscript; Bianca Ferrarese has helped with data processing and manuscript editing; Michele Carron has supervised the study.

**History.**—Article first published online: February 25, 2020. - Manuscript accepted: November 27, 2019. - Manuscript received: November 5, 2019.

(Cite this article as: De Cassai A, Ferrarese B, Boscolo A, Munari M, Carron M. Comparison of two needles for ultrasound guided interfascial plane block by inexperienced operators. *Minerva Anestesiologica* 2020;86:574-5. DOI: 10.23736/S0375-9393.19.14271-X)

© 2019 EDIZIONI MINERVA MEDICA  
Online version at <http://www.minervamedica.it>  
*Minerva Anestesiologica* 2020 May;86(5):575-6  
DOI: 10.23736/S0375-9393.19.14287-3

## A “burn out” of occipital cortex

A 45-year-old woman was admitted in ICU after left parafalcine meningioma resection. No surgical or anesthesia-related complication was reported. After the suspension of sedation, there were not photomotor reflex and spontaneous respiratory trigger, Glasgow Coma Scale (GCS) was seven (E1VtM5 bilaterally). computed tomography angiography (CTA) described a normal postoperative pattern, cerebrospinal fluid examination was unremarkable. The continuous electroencephalography (cEEG) founds continuous rhythmic slow pattern.

The day after photomotor and trigger came back and magnetic resonance (MR) showed abnormal diffuse increased signal of the occipital bilateral lobes on DWI and FLAIR sequences involving occipital cortex and continuous subcortical white matter (Figure 1A-C) without contrast enhancement.

A new cEEG was performed showing diffuse continuous sharp wave activity (Figure 1D). Anti convulsant drugs were started and coma was induced and maintained for three days.

The patient was discharged from intensive care at day 15 with tracheostomy and GCS 7. At day 45 she was awake, blind, tetraparetic. At 6<sup>th</sup> month follow-up visit she was awake, with slight impairment in walking, with short term memory disorders, blindness recovered and slight problems in focusing were referred.

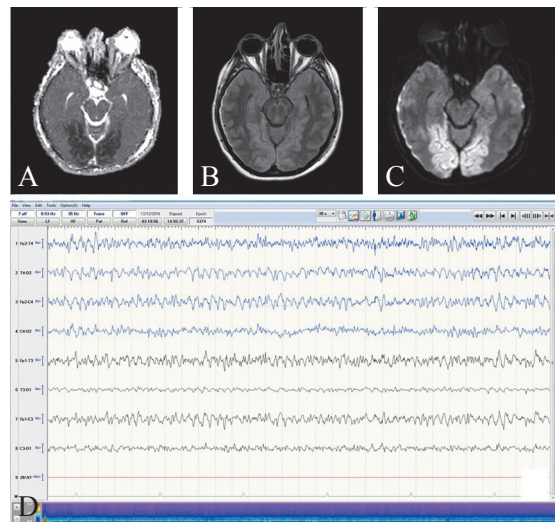


Figure 1.—Bilateral occipital hypointensity in apparent diffusion coefficient (ADC, panel A) and hyperintensity in diffusion-weighted image (DWI, panel B) and fluid attenuated inversion recovery (FLAIR, panel C) sequences; diffuse bilateral continuous sharp-wave activity in continuous electroencephalography (panel D).

This case of transient neurological impairments associated with disturbance in consciousness, seizures and localized MRI lesions made differential diagnosis particular difficult. Several neurological syndromes are related with these signs such as posterior reversible encephalopathy syndrome (PRES) or reversible cerebral vasoconstriction syndrome (RCVS) but due to their neuroradiological and angiographic patterns neither PRES nor RCVS fulfilled diagnostic criteria.<sup>1, 2</sup> Non-convulsive status epilepticus (NCSE) may be an alternative and often misdiagnosed cause of these signs and delay in starting appropriate antiepileptic therapy might determine neurological sequelae.<sup>3</sup> Differential diagnosis is essential because neither PRES nor RCVS have specific therapy, but just supportive therapy is requested on the other hand NCSE require an immediate starting of antiepileptic drugs.

Serena SILVA<sup>1</sup>\*, Daniele G. BIASUCCI<sup>1</sup>,  
Eleonora STIVAL<sup>1</sup>, Isabella MELCHIONDA<sup>1</sup>,  
Anselmo CARICATO<sup>1</sup>, Fabio PILATO<sup>2</sup>

<sup>1</sup>Department of Emergency, Anesthesiology and Resuscitation Sciences, IRCCS A. Gemelli University Polyclinic Foundation, Rome, Italy; <sup>2</sup>Department of Neurosciences, IRCCS A. Gemelli University Polyclinic Foundation, Rome, Italy

\*Corresponding author: Serena Silva, Department of Emergency, Anesthesiology and Resuscitation Sciences, IRCCS A. Gemelli University Polyclinic Foundation, Rome, Italy.  
E-mail: [serena.silva@policlinicogemelli.it](mailto:serena.silva@policlinicogemelli.it)