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Use of Pocket-Sized ultrasound device (V scan air) in the labor and delivery room

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Abstract

To investigate the role of Pocket-Sized Ultrasound Device (PSUD) in labor and delivery and to assess healthcare workers and patients' engagement and satisfaction compared to standard of care. Prospective, single-center, observational study. The study was performed from January 2023, to January 2024. During the study period, residents, and attendings were provided a handheld US device (Vscan Air™ CL, GE Healthcare, Zipf, Austria) to use during Labor and Delivery (L&D) activities. The primary outcome of the study was number of uses of the device during the following: urgent or emergent cesarean delivery, operative vaginal delivery, Dilation and Curettage (D&C), intrapartum cardiotocography (CTG). Secondary outcomes were participants and personnel surveys about their perceptions of the handheld US device. During the study period, the device was used by 10 residents, and 10 attendings during the L&D activities. The device was used for 5 operative vaginal delivery with vacuum, 100 spontaneous vaginal delivery for assessing fetal position (fetal occiput), 35 D&C, 50 intrapartum CTG, and before 25 urgent or emergent cesarean delivery. All personnel were satisfied with the device, and would love to adopt it in their future clinical practice. The probe was judged as easy to handle and the application easy to use. 16/20 considered the battery life as the major weakness of the device. Image quality was considered as good with 8/20 participants, and excellent by 12/20 of them. 13/20 participants considered the correct application of the vacuum during the operative vaginal delivery as the most important indication for the use of the device, while the other 7 considered the assessment of fetal occiput. Regarding women perspective, all the women enrolled in the study were satisfied with the device, and the vast majority feel safer when ultrasound was routinely used during L&D activities. V scan Air™ is easy to use with a good quality image. Personnel and maternal satisfaction were high.

Keywords: Pocket-Sized, Ultrasound device, Labor and delivery room

Introduction

Ultrasound in Labor and Delivery (L&D) has been used, in the last few years, as adjunct tool for different indication, including determination of cervical dilation, fetal position, and before operative vaginal delivery (1).

Ultrasound machines are however heavy to be moved, and require a power supply. In an emergency context, such as a L&D ward, handheld US device can be used as an alternative to standard high-specification ultrasound machine (HSUM) (2).

V scan Air™ CL is a wireless, handheld ultrasound system, with both curved and linear array (3,4), studied in different contexts. However, data about its use in labor and delivery are lacking (5)

The aim of the study was to evaluate the impact of a Pocket-Sized Ultrasound Device (PSUD), i.e. Vscan Air, in labor and delivery assessing healthcare workers and patients' engagement and satisfaction

Methods

This was a prospective, observational study, conducted in a single center in Italy (University of Naples Federico II, Naples, Italy) from January 2023, to January 2024. During the study period, residents, attendings and midwifes were provided a handheld US device (Vscan Air™ CL, GE Healthcare, Zipf, Austria) to use during L&D activities. The primary outcome of the study was number of uses of the device during the following: urgent or emergent cesarean delivery, operative vaginal delivery, Dilation and Curettage (D&C), intrapartum cardiotocography (CTG). Secondary outcomes were participants and personnel surveys about their perceptions of the handheld US device. At the end of 12 months use, participants completed the surveys about their perceptions of the handheld US device. Participants were requested to use the US device at their discretion when demand as necessary.

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Results

During the study period, the device was used by 10 residents, and 10 attendings during the L&D activities. The device was used for 5 operative vaginal delivery with vacuum, 100 spontaneous vaginal delivery for assessing fetal position (fetal occiput) (Figure 1), 35 D&C (Figure 2), 50 intrapartum CTG, and before 25 urgent or emergent cesarean delivery.

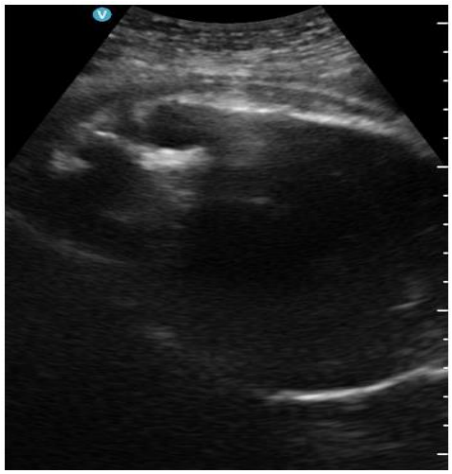

Figure 1. Use of ultrasound for assessing fetal position (fetal occiput)

Figure 2. Use of ultrasound during D&C

All personnel were satisfied with the device, and would love to adopt it in their future clinical practice. The probe was judged as easy to handle and the application easy to use. 16/20 considered the battery life as the major weakness of the device. Imagine quality was considered as good with 8/20 participants, and excellent by 12/20 of them. 13/20 participants considered the correct application of the vacuum during the operative vaginal delivery as the most important indication for the use of the device, while the other 7 considered the assessing of fetal occiput.

Regarding women perspective, all the women enrolled in the study were satisfied with the device, and the vast majority feel safer when ultrasound was routinely used during L&D activities.

Discussion

Main findings

This study aimed to assess the role of a PSUD in labor and delivery and to assess healthcare workers and patients' engagement and satisfaction compared to standard of care. We found that use of a PSUD is associated with maternal and personnel satisfaction. The major weakness of the study were the small sample size and the non-randomized study design.

Clinical implications

Ultrasound is the most widely used imaging in obstetrics (6). The Vscan Air is a new 3rd generation point of care ultrasound device that uses B-mode sonography and Color Doppler with a two-headed probe (convex and linear) (Figure 3). First data on point of care ultrasound were published on Focused Assessment with Sonography for Trauma (FAST) ultrasound, while data on obstetrics and labor and delivery were lacking. In a prior study, Corroenne et al. found that Vscan Air is easy to use with good quality image (5,6). Our data concur with prior studies regarding efficacy and safety of the point of care device.

Figure 3. Image of the wireless point of care ultrasound device Vscan Air (GE Healthcare, USA)

Conclusions

In summary, providing a labor and delivery ward with a handheld US device, increases the use of ultrasound during L&D activities. Vscan Air™ is easy to use with a good quality image, and is associated with personnel and maternal satisfaction. Use of handheld ULS in the Labor & Delivery setting may have an impact on clinical outcomes. Future large randomized clinical trials are required.

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Conflict of interest: None reported

References

1. Molina FS, Nicolaides KH. Ultrasound in labor and delivery. Fetal Diagn Ther. 2010;27(2):61-7. doi: 10.1159/000287588. Epub 2010 Feb 18. PMID: 20173318.
2. Vintzileos AM, Chavez MR, Kinzler WL. Use of ultrasound in the labor and delivery. J Matern Fetal Neonatal Med. 2010 Jun;23(6):469-75. doi: 10.3109/14767050903294238. PMID: 19895353.
3. Le MT, Voigt L, Nathanson R, Maw AM, Johnson G, Dancel R, Mathews B, Moreira A, Sauthoff H, Gelabert C, Kurian LM, Dumovich J, Proud KC, Solis-McCarthy J, Candotti C, Dayton C, Arena A, Boesch B, Flores S, Foster MT, Villalobos N, Wong T, Ortiz-Jaimes G, Mader M, Sisson C, Soni NJ. Comparison of four handheld point-of-care ultrasound devices by expert users. Ultrasound J. 2022 Jul 7;14(1):27. doi: 10.1186/s13089-022-00274-6. PMID: 35796842; PMCID: PMC9263020.
4. Tanaka HL, Medak AJ, Duchnick J, Lindholm P. Wireless point-of-care ultrasound in a multiplace hyperbaric chamber. Undersea Hyperb Med. 2023 Third Quarter;50(3):265-272. PMID: 37708059.
5. Corroenne R, Chesnais M, Khawand C, Attali I, Boucherie AS, Defrance M, Morgan R, Maurey L, Ville Y, Salomon LJ. Physicians' perceptions of the daily use of a handheld ultrasound device in the labor room. J Gynecol Obstet Hum Reprod. 2023 Sep;52(7):102618. doi: 10.1016/j.jogoh.2023.102618. Epub 2023 Jun 7. PMID: 37290728.
6. Fatima, T., Bilal, A. R., Imran, M. K., & Jam, F. A. (2025). Developing Entrepreneurial Orientation: Comprehensive Skill Development Guide for Software Industry in South Asia. In *Entrepreneurship in the Creative Industries* (pp. 132-157). Routledge.