

Pediatrics Neonatal Care 2019: Point of care ultrasound in NICU- Monika Kaushal- Emirates Specialty Hospital, UAE

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Most of ultrasounds are in tertiary care setting with radiologist supported services available, not all of these settings have pediatric radiologists and most of these settings would not be able to provide instantaneous service within minutes, however these patients are usually not mobile. To overcome these problems, the neonatologists should be performing point of care ultrasound at bed side to take quick decision. Machines have become smaller and portable, image quality has improved and cost has dramatically declined making inexpensive units available. Common problems in the NICU evaluated with sonography are: (1) Neuro – Screening for ICH and PVL – Monitoring evolution of ICH (including ICP) – Confirmation of prenatally suspected malformations or injuries – Evaluation for occult defects of the lower spin; (2) Renal/GU – Confirmation of prenatally suspected malformation, dysgenesis or obstruction – Assessment for obstruction of blood flow to or from the kidney in the setting of hypertension or hematuria – Suspicion for testicular torsion – Confirmation of bowel in inguinal hernia; (3) GI – Evaluation of biliary tree in the setting of cholestasis; (4) fECHO/TNE – PDA significance – Response to inotropic agents; (5) Umbilical line tip placement – Reduction in radiation exposure; (6) Bladder catheterization or tap; (7) Pleural effusion drainage; (8) PICC and PIV placement; (9) Increased ICH requiring LP; and (10) ETT placement. When neonatologist is performing the ultrasound the positive things are that he has the knowledge of the patient's clinical history and needs, can rapidly return of information that can inform acute management, can have access optimized for non-mobile patients (timing, portable) and ultrasound has lower radiation exposure for line, tube placement as compared to X-ray. But the problems are that most of us lack of training in imaging, lack of knowledge of anatomy, lack of knowledge on physics of ultrasound, lack of technical knowledge regarding the machine, loss of control by radiologist (QI, reporting, billing),

shortage of access to machine and dearth of technical support/service. To overcome this, we should get trained in point of care of ultrasound and save our little ones by timely management.

The infant cerebrum is promptly available for sonographic imaging by the open delicate tissue windows of the foremost fontanelle and the open stitches found between the unfused cranial bones. Neonatologists are very acquainted with survey and deciphering cranial ultrasound pictures as these are routinely checked on every day on clinical rounds. The essential perspectives are coronal (front to back), sagittal (left to right) and pivotal perspectives for back fossa [1]. POCUS can give brilliant perspectives on the general design of the cerebrum particularly the two ventricles, assessment of drain or calcifications and early proof of ischemic changes. The utilization of POCUS for mind imaging is especially valuable when presume discharge might be answerable for weakening or hemodynamic flimsiness, now and again when sonographic support isn't promptly accessible. The identification of expanded weight, cerebral edema or stroke isn't delicate with HUS and other imaging modalities, for example, CT or MRI are suggested. Remember that these assessments are restricted in assessing this triangulated perspective on the cerebrum and can miss occasions or sores outside of this window in the parietal locales. Head ultrasound is one of the simpler strategies to learn for neonatologists since the perspectives are as of now extremely recognizable to them. The imaging procedures pivot after setting up stable upstanding perspectives on the two halves of the globe and hub perspectives on the back fossa structures. Neonatal suppliers have plentiful involvement with auditing and deciphering head ultrasounds for basic pathology, for example, periventricular leukomalacia, intraventricular and intracranial hemorrhages thus a large portion of the abilities are centered around imaging.

Focal vascular catheters, for example, umbilical blood vessel catheters (UAC), umbilical venous catheters (UVC), and incidentally embedded focal catheters (PICC) are the most widely recognized focal catheters set in the wiped out neonate. Any neonate brought into the world at under 32 weeks incubation will have in any event an UVC or potentially a PICC during their confirmation for sustenance and additionally prescriptions. In many units these lines are put visually impaired and affirmed with a solitary radiograph. UVC tip restriction by standard radiography is uncertain. In one investigation around 30% of the radiographs were perused as ordinary however really had the UVC tip in the correct chamber when checked with US [2]. Radiographic restriction of UVC on front back (AP) is hard to put in perfect position on account of the doming of the stomach. The parallel chest radiograph is better than the AP perspective on the chest yet this view isn't as helpful with the newborn child commonly made sure about down for the technique.

Utilization of POCUS for vascular access for PICCs has been constrained due to the more prominent range of abilities required to getting to these little veins contrasted with more established kids. Setting up committed PICC groups can help build up this skill to advance this part of focal catheter POCUS. Different regions of advantage from POCUS in the NICU are blood vessel line situation where confinement of the vessel and stream recognizable proof by Doppler ultrasound can be performed. An altered Allen test with Doppler ultrasound assessment of guarantee stream is helpful before the strategy. Ongoing ultrasound can bring about less endeavors and less possibility of a hematoma as contrasted and palpation.