

## Peripherally-inserted Central Catheter (PICC) Insertion in Neonates: Apnea and Radiocontrasts Complications

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The importance of pain management throughout minimally-invasive procedures such as peripherally-inserted central catheter (PICC) insertion is an inevitable fact. However, administration of varied analgesics, especially opioids, in specific age ranges such as neonate could be of immense concern. Most of these patients are on different medications, especially those hospitalized in the ICUs or with critical conditions. Neonates receiving continuous opioid infusions might also require an additional opioid bolus to control the associated pain (1). Importantly, it should be taken into consideration that administration of opioids or even a light sedation would increase the risk of delayed apnea in this group of patients (2). Factors contributing to this complication include ex-premature infants (gestational age < 37 weeks), premature infants

younger than 46 weeks' postconceptual age and anemia (hematocrit < 30%) (3, 4). Hence, it is recommended to use other supplementary analgesic techniques including local or topical anesthesia, especially in neonates having previously received continuous or bolus opioids. Furthermore, supplementary techniques assisting the confirmation of proper placement such as overpenetrating the radiograph, lateral X-rays and positioning the infant for a lateral oblique radiograph (right side elevated at a 10°–15° angle) are frequently used by clinicians to avoid administration of radiocontrasts and their associated complications. In the latter technique, catheter visualization could be enhanced as the PICC will not be superimposed over the mediastinal structures (5, 6).

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