To the Editor,

I describe here a novel technique of inserting a 2.5-inch catheter into the internal jugular vein with ultrasound guidance using sterile technique but no barrier precautions.

 Patients often present to the emergency department (ED) and have difficult veins for inserting an intravenous (IV) catheter. Most commonly, this is because of previous IV drug use, morbid obesity, or previous medical illness. The options in this setting usually depend on the acuity of the patient and experience of the providers. They include ultrasound-guided peripheral vein catheter, intraosseous catheter, and central vein catheter [1-6]. Based on my experience, each of these options has significant limitations. Insertion of a peripheral catheter with ultrasound guidance is technically challenging and is time consuming even in the best of hands. Intraosseous catheters are common enough in the ED setting, but inpatient nurses and physicians are unfamiliar and uncomfortable with this access. Central vein catheters are time intensive, are uncomfortable, and carry many other well-known risks.

It has been demonstrated that ultrasound-guided peripheral venous access success was primarily predicted by target vein diameter [7,8]. Although this seems intuitive, the next question may be less so. Do we need to limit ultrasound-guided peripheral IV access to peripheral veins? In the subset of patients who have difficult IV access but only need short-term access (defined as less than 72 hours—the usual duration that peripheral IVs are left in place), do we need to make a distinction between a central vein and a peripheral vein? With advances in ultrasound imaging, technique, and catheter preparation, can this distinction between peripheral and central access blur? Can a central vein be accessed using ultrasound guidance but otherwise using a peripheral IV technique?

After institutional review board approval, the procedure was performed by 1 of 4 individuals familiar with ultrasound in patients who were identified by nurses as having difficult IV access and required definitive access not likely longer than 72 hours. No procedures were performed on patients if they needed immediate (emergent) IV access or if there was a contraindication to using the right internal jugular vein for access.

This technique was performed in much the same way a peripheral IV would be placed using the following protocol: The patient was placed in Trendelenburg position, if tolerated. Sterile prep of the skin was performed using ChloraPrep (Carefusion, Leawood, KS). A Tegaderm (3M, St Paul, MN) barrier measuring 10 × 12 cm was placed on

References


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the 10 mHz linear ultrasound probe of an Ultrasonix Touch ultrasound machine (Ultrasonix, Richmond, BC, Canada), and sterile Surgilube (Altana Inc, Melville, NY) was applied to the ultrasound probe. The ultrasound probe was used to locate the right internal jugular vein in standard transverse or longitudinal orientation depending on user preference. Local anesthesia was injected along tract toward vein, and a 6.4-cm catheter (18 gauge × 2-1/2′ Spring-Wire Guide Introducer Catheter Assembly [Arrow International, Reading, PA] or 18 gauge × 2-1/2′ angiocath [B Braun Medical, Bethlehem, PA]) was inserted in standard fashion until a flash of blood was obtained at which time the catheter was advanced over the needle. Placement was confirmed by withdrawing blood and easily flushing saline. The catheter was labeled with date and time of insertion to assure removal within 72 hours.

Nine patients underwent this procedure with successful insertion of the catheter on the first attempt in all patients. Mean body mass index was 34.4 kg/m². Mean time of insertion from start of procedure defined as start of skin preparation to complete securing of the catheter was 5.54 minutes. All catheters were labeled as peripheral catheters and were removed within 72 hours. Two catheters (both Arrow Spring-Wire Guide Catheters) failed in the first 72 hours because of kinking. Charts were reviewed of all patients, and there were no apparent adverse outcomes at up to 1 year of follow-up with particular attention to diagnoses such as deep vein thrombosis, bacteremia, endocarditis, and pneumothorax.

At first glance, placing a catheter into the internal jugular vein without full barrier precaution may seem cavalier or even dangerous. With careful consideration, there should be no significant difference between placing a catheter in the internal jugular vein and placing it in any other vein including the neighboring external jugular vein as long as the catheter is not left in place longer than the commonly accepted standard of 72 hours. Future studies might examine the safety of this procedure. However, given the quite rare nature of catheter-related infections, a very large study population would be needed.

In retrospect, I would not have used the Arrow catheter, which tended to kink at the hub when the patient turned or bended his or her neck. The B Braun catheter was much more robust and did not kink.

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References


Association between acute urinary retention and Guillain-Barré syndrome

To the Editor,

We thank Wu et al [1] for their excellent case study on Guillain-Barré syndrome (GBS). The authors presented a case of GBS with acute urinary retention from autonomic dysfunction. Dysautonomia, including urinary retention, tachycardia, and orthostatic hypotension, can occur in 70% of patients with this syndrome [2]. However, acute urine retention in GBS can be associated with other mechanisms such as Escherichia coli infection.

The proposed mechanism for GBS is that an antecedent infection activates an immune response, which in turn cross-reacts with peripheral nerve components [3]. Although Campylobacter jejuni infection is the most commonly identified precipitant of GBS, urinary tract infection and bacterial prostatitis, which are common causes of acute urinary retention, caused by E coli, have also been reported as the association with this ascending paralysis syndrome [4,5]. Acute urinary retention from autonomic dysfunction in GBS is not uncommon; however, physicians should raise the concern of urinary tract infection and bacterial prostatitis as well.

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