POST GRADUATES ABSTRACTS

PG -02 : A RANDMIZED COMPARISON OF ULTRASOUND GUIDED SUBCLAVIAN VEIN CANNULATION IN TWO DIFFERENT ARM POSITIONS IN MECHANICALLY VENTILATED PATIENTS

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Background: Subclavian-vein(SCV) cannulation is associated with lowest incidence of catheter-related bloodstream-infection. Ultrasound-guidance has become the standard of care for central venous access. But the clavicular acoustic-shadow limits visibility of proximal part of SCV. Hence we designed this study to test the hypothesis that abduction of the arm to 90 would improve the sonographic-visualization and cannulating SCV in mechanically-ventilated patients.

Methodology: After Ethical-committee approval, sixty patients having BMI <30, elective surgery

GA were recruited and informed-consent obtained. SCV size, depth&posterior relation measured at three different points, medial part of SCV visualization near clavicular acoustic-shadow in adducted-arm(Point-A) or abducted-arm(Point-B) and at same point-A with abducted-arm(Point-A'). The distance between Point-A&B over the skin and cephalic movement of the clavicular acoustic-shadow from PointA-A' were noted. Then they were randomized into two groups namely, Group-A(adducted-arm) and Group-B(arm-abducted,shoulder-90) by sealed enveloped technique. Anaesthesiologist with an experience of more than 20-ultrasound guided SCV cannulation performed the procedure in strict aseptic precautions by out of plane approach with Seldinger's-technique. If any malposition of guidewire was noted and cannulated after redirecting into right atrium. Attempt, first-pass success, failure and complications noted.

Results: In abducted-arm position from Point A-A', the clavicular acoustic-shadow moved in cephalad-direction by 2 0.4cm, enabled the proximal scanning of SCV from Point-A to Point-B by 2 0.6cm. During proximal scanning from Point A-A'-B, SCV becomes smaller(12 5,10 5,10 4mm2;P=0.00),closer to skin (19 5,20 5,17 4mm;P=0.00) and distance to pleura was 3mm deeper in Point-A'(6 2,9 6,5 2mm;P=0.00). The first-pass success rate was 80% in Group-B(P=0.552) and the number of attempts in two groups was comparable(P=0.752).

Conclusion: Abduction of arm moves away the clavicular-acoustic shadow cephalad by 2cm to enable easier visualisation and cannulation of SCV under USG guidance. The point of entry where the subclavian artery disappears under the clavicular shadow in abducted-arm seems to more ideal for cannulation. This described point is more medial and the SCV becomes more superficial with only rib as its common posterior structure. The complication rate is very minimal in experienced hands.