Reviewer's report

Title: Inferior Thyroid Artery Pseudoaneurysm Associated with Internal Jugular Vein Puncture: A Case Report

Version: 3  Date: 29 November 2014

Reviewer: Daniele G Biasucci

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I read with special interest this paper written by Ruan and coll. describing a case of a patient presenting inferior thyroid artery pseudoaneurysm associated with internal jugular vein (IJV) puncture. This is a very important and well written paper teaching us how IJV catheterization must not be performed. Anyways, this paper needs few major compulsory revisions which may make it more effective.

- Major Compulsory Revisions

1) There are several compelling evidence showing that real-time ultrasound-guided central vein puncture significantly increases safety, effectiveness and efficiency of vascular access, as compared to cannulation by anatomical landmarks, leading national organizations, such as National Institute for Clinical Excellence (NICE) or Agency for Healthcare Research and Quality (AHRQ) to recommend ultrasound guided CVC placement [1,2]. Since 2001 the report commissioned by the AHRQ, “Making Health Care Safer: A Critical Analysis of Patient Safety Practices” helped identify ultrasound-guided CVC placement as one of the evidence-based safety practices strongly recommended! In 2013, in “Making Health Care Safer II: An Updated Critical Analysis of the Evidence for Patient Safety Practices”, the expert panel explicitly considered the strength and quality of evidence about effectiveness and implementation for each patient safety strategy (PSS) and concluded that 22 PSSs are ready to be encouraged for adoption NOW by health care providers. Ultrasound-guided CVC placement is still among the strongly recommended patient safety strategies! In the 2012, Lamperti et al. published on Intensive Care Medicine international evidence-based recommendations on ultrasound-guided vascular access addressing the best practice of this procedure [3]. This is the only and most recent paper addressing important issues regarding the optimal technique to use and how to apply ultrasound-guided venipuncture in everyday practice in order to reduce and detect life-threatening complications. For this reason this paper should be quoted!

2) On page 5, from line 10 up to line 13, the authors state, correctly, that one of the lessons learned from this case is that “… no real time ultrasonography was used during the CVC attempt...”. Anyways, the authors should justify why they did not use the ultrasound guidance on the first attempt as recommended by the international consensus conference on vascular access [3]. Especially in this
3) On page 5, from line 25 up to line 27, the authors claim “... there are still numerous reports of inadvertent arterial placement of large-bore catheters that have occurred despite the use of ultrasound guidance...”. Regarding this point, the authors should make the consideration that these complications are due to a wrong technique with a missed needle tip correct visualization, inadequate training of the operator and operator inexperience.

4) On page 6, from line 3 up to line 5 that authors state that “... ultrasound guidance can not eliminate the incidence of arterial puncture and has its limitation on punctured sites, its availability and cost...”. This is not true! (a) When visualizing the IJV the ultrasound probe should be placed in the short axis and the needle introduction can follow an 'in-plane' (when included in the plane of the ultrasound beam) or an 'out-of-plane' (when only a very limited part of the needle can be visualized by the ultrasound beam) technique. The short axis view allows the visualization of the lateral surrounding structures (carotid artery, lymphnodes, thyroid). With this position of the ultrasound probe, the needle is usually inserted vertically above the middle part of the ultrasound probe. With this type of technique the operator has a very limited view of the needle. In the lateral short axis in-plane technique the probe is positioned in a transverse orientation, with a good view of the IJV and its surrounding structures (arteries, thyroid, lymphnodes). The needle is inserted at the level of the lateral-edge of the ultrasound probe. This technique guarantees the visualisation of the entire length of the needle during vein access avoiding arterial damages! (b) please, specify what do you mean for “...its limitations on punctured sites...”: ultrasound provides optimal visualization of internal jugular vein, innonimate vein, subclavian vein in the supraclavicular fossa and it allows subclavear CVC placement puncturing axillary vein. (c) Ultrasound-guided vascular access has to be used because it results in clinical benefits and reduced overall costs of care makes it cost-effective, as stated in the international evidence based recommendations on vascular access [3].

REFERENCES:


**Level of interest:** An article of importance in its field

**Quality of written English:** Acceptable

**Statistical review:** No, the manuscript does not need to be seen by a statistician.

**Declaration of competing interests:**

I declare that I have no competing interests