

Journal Club Synopsis for Block 8 – Jan 21, 2013

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“Which central lines should be used in which circumstances and why?”

Article 1 - Patrick SP, Tijunelis MA, Johnson S, Herbert ME. Supraclavicular subclavian vein catheterization: the forgotten central line. *West J Emerg Med.* 2009 May;10(2):110-4.

This article was a review article that mainly discussed the supraclavicular approach to subclavian venous access. The original Yoffa approach is described, among other eponymous methods to cannulate the SC vein from above the clavicle. Essentially, the findings were that the supraclavicular approach is a useful line that may have more advantages than an infraclavicular approach. I think the consensus of the discussion was that perhaps this line should be re-integrated into the skill set of our residents. Perhaps it can make a comeback in the Simlab during orientation month during PGY1?

Article 2 - Marik PE, Flemmer M, Harrison W. The risk of catheter-related bloodstream infection with femoral venous catheters as compared to subclavian and internal jugular venous catheters: a systematic review of the literature and meta-analysis. *Crit Care Med.* 2012 Aug;40(8):2479-85.

This article challenged the CDC claim that femorally placed central venous catheters are “dirtier” lines, in general, than upper body central lines. This is a systematic review article that included a meta-analysis that mostly compared catheter related bloodstream infections between femoral lines and subclavian/internal jugular lines. There was found to be no real difference between the different lines. There was also found to be no real difference in rate of DVT in a sub-analysis. I think we all agreed that the main reason for this is that, in this day and age, we are very conscientious about full sterile technique in a stable patient, and are upfront about when a line was done in a sub-sterile manner, so that the line can be changed within an appropriate timeframe.

Article 3 - Wu SY, Ling Q, Cao LH, Wang J, Xu MX, Zeng WA. Real-time two-dimensional ultrasound guidance for central venous cannulation: a meta-analysis. *Anesthesiology.* 2013 Feb;118(2):361-75.

This was also a review article with meta-analysis that compared real-time ultrasound guidance of central lines versus landmark-only placement of central lines. Primarily, I think, this pertains to internal jugular lines, since the vast majority of total lines placed were IJ lines. There were found to be lower rates of overall complications when using RTUS versus landmark-only placement. In children, the results were not powered strongly enough to say that this applies to them as well but, logically, it probably does. There was also a statement that this is likely true for subclavian and femoral lines, but the numbers were a bit low to make as strong an assertion as for placing IJ lines. I think the general consensus was that IJ lines with US guidance will soon become the standard of care, and that it is probably not a bad idea to grab the US machine for femoral line placement. Subclavian lines? Well, I’m not sure. It can be done, but it certainly isn’t standard of care at this time.

As promised, the results of the informal poll:

Total number of residents polled: 31 (10 PGY1, 9 PGY2, 12 PGY3)

Average number of central lines to date, by post grad year:

R1 avg – 20 (range 0-60)

R2 avg – 52 (range 25-70)

R3 avg – 90 (range 30-150)

Which is your “Go To” line, across all post grad years?

Femoral 14

IJ 14

Subclavian 3

Go To lines by post grad year:

EM1 70% femoral
30% IJ
0% subclavian

EM2 55% femoral
45% IJ
0% subclavian

EM3 33% femoral
41% IJ
25% subclavian

(Note from Dr. Olson: This data series shows no significant difference between PGY years.)

Ultrasound guidance across all post grad years:

Femoral 26% prefer US
74% prefer landmarks

IJ 99% prefer US
1 person prefers landmarks

Subclavian 12% prefer US
88% prefer landmarks