DETECTION OF INTERNAL JUGULAR VEIN THROMBOSIS IN CARDIAC SURGERY

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Background and goal of study

The presence of thrombi or complete thrombosis of the internal jugular vein (IJV) may be a cause of failure of venous catheterization. IJV thrombosis is a rare and an underdiagnosed condition. It may lead to life-threatening complications such as pulmonary embolism, sepsis or cerebral thrombosis. ^(1,2)

Its most frequent causes are: ^(3,4,5) previous central venous catheterization, head and neck trauma, infection or surgery, malign diseases, hypercoagulable states and intravenous drug abuse. It may also occur spontaneously. Treatment includes ^(3,4) early anticoagulant therapy and if probability of infection broad-spectrum antibiotics.

The goal of this study was to determine the incidence of IJV thrombosis (or presence of thrombi) in patients scheduled for cardiac surgery before central venous catheterization.

Materials and Methods

A prospective observational study was conducted. 73 patients scheduled for cardiac surgery were included and a total of 146 internal jugular veins were explored. A trained anesthesiologist performed an echo-Doppler of both IJV from the submandibular area to the supraclavicular fossa before venous catheterization. All the known risk factors for IJV thrombosis were recorded.

Exclusion criteria were patients with a jugular catheter in place at the moment of inclusion .

Results and Discussion

The incidence of thrombi in our sample was 2,73%. The incidence was exactly the same in the left than in the right side. Large venous valves were observed in 19,2% of the cases in the right side and in 11% in the left side. None of the classic known risk factors was associated with a higher incidence of thrombi in our sample. The use of anticoagulant or antiplatelet therapy was not protective.

Figure 1: Two dimensional ultrasound images from patients included in the present study that show two different internal jugular veins in short-axis view occupied with a thrombus.

Conclusion

There is compelling evidence that ultrasound guided internal jugular vein catheterization is associated with a higher success rate and fewer mechanical complications compared with traditional approach based on external anatomical landmarks.⁽¹⁾ But availability of ultrasound devices in the intraoperative setting might be a problem, especially because of the realization of simultaneous procedures in a short period of time that may require ultrasound use.

Due to the incidence of IJV thrombosis and large venous valves, at least, the screening of the internal jugular veins before puncture may help to choose the right vein to catheterize avoiding failure in catheterization and its potential complications and saving time in the intraoperative setting.

We should discuss also the importance to discard malignancy or coagulopathy disorder in those cases of finding an IJV thrombosis without apparent cause.

73 PATIENTS INCLUDED → Eco-Doppler both IJV (146 analysed)

2'73% THROMBI (LEFT=RIGHT)
19'2% RIGHT LARGE VENOUS VALVES
11% LEFT LARGE VENOUS VALVES

NON CLASSIC RISK FACTORS ASSOCIATED
ANTIPLATELET/ANTICOAGULANTS NOT PROTECTIVE

References

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