



Patient Safety: Safety of DOACs in Needle EMG

From the AANEM Quality and Patient Safety Committee

There is great variability in the practice patterns amongst physicians performing EMG when it comes to patients who are on anticoagulants. EMG is thought of as a safe procedure with a very small risk of bleeding complications, but the risks in patients taking direct oral anticoagulants (DOACs) has not been well studied, with only a few short reports that suggest the procedure is relatively safe.

Question: The risk of hemorrhagic complications during a needle EMG of patients taking DOACs:

- A. Is significantly higher than with warfarin based on a large randomized study.
- B. May be low, but has not been well studied and more data is required.
- C. Is significantly lower than in patients taking warfarin.
- D. Has never been studied.

Answer: B) may be low, but has not been well studied and more data is required.

Explanation: The small retrospective study by Nagarajan, looked at hematoma risk after EMG in patients anticoagulated with warfarin and DOACs. Fifty eight patients were included, equally split between the warfarin and DOAC groups, and underwent neuromuscular ultrasound for hematoma. Nine patients had a detectable hematoma. Of these, 66.6% were classified as clinically relevant non-major bleeding (6 patients) and 33.4% (3 patients) had asymptomatic hematomas. No cases of major bleeding complications were found. Overall, of the nine cases of bleeding were found, 7 were in the DOAC group and 2 in the warfarin group. Among the clinically relevant non major bleeding group, five patients were taking a DOAC and one was taking warfarin. The definition of clinically relevant non-major bleeding used required one of the following: bleeding that prompted medical intervention by a medical professional, bleeding requiring a face to face evaluation, or bleeding that required an increased level of care. Based on this small retrospective study, the incidence of hemorrhagic complications on DOACs was found to be 24.1% compared to 7% on warfarin. However, needle EMG was not associated with clinically relevant major hemorrhagic complications in patients using the DOACs. Larger, prospective studies are needed. Caution should be exercised during needle EMG in patients on DOACs and warfarin.

Sources:

Nagarajan, E et al. Hematoma risk after needle electromyography in patients using newer oral anticoagulants. J Clin Neurophys. 2021 Jan; 38(1):69-72.

Lee et al. Needle electromyography practice patterns in patients taking novel oral anticoagulants. MuscleNerve 2018; 58 (2):307-309

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