Number needed to treat for net effect of anticoagulation in atrial fibrillation

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Background: The benefit of oral anticoagulation (OAC) in atrial fibrillation (AF) must be balanced against any potential risk of harm. We aimed to evaluate the "NNT for net effect" (NNTnet) using CARS in anticoagulated patients with AF.

Methods: We used patient-level data from the real-world Murcia AF Project and AMADEUS clinical trial. Baseline risk of stroke was calculated using CARS while major bleeding was estimated from prior studies. Stroke and major bleeding events at 1-year were determined. NNTnet was calculated as a reciprocal of the net effect of ARR with OAC (NNTnet= 1 / (ARRstroke - ARIbleeding)).

Results: 3,511 patients were included (1,306 [37.2%] real-world patients and 2,205 [62.8%] clinical trial). The absolute 1-year stroke risk was similar across both cohorts and the main results are presented in the Table.

In both cohorts, the NNTnet was significantly lower in patients with an excess stroke risk of ≥2% by CARS. Among real-world patients with a very high (>10%) baseline stroke risk, the use of OAC was associated with an ARRstroke of 10.9% and ARIbleeding of 1.2%, generating an overall NNTnet of 11. In the clinical trial, the use of OAC was associated with an ARRstroke of 11.0% and ARIbleeding of 0.6%, generating an overall NNTnet of 10.

Conclusion: Overall, the NNTnet approach in AF incorporates information regarding baseline risk of stroke and major bleeding, and relative effects of OAC with the potential to include multiple additional outcomes and weighting of events based on their perceived effects by individual patients. This simple and intuitive metric may be useful to improve communication and optimise the patient-centred management of AF.

NNT in Real-World and Clinical Trial

	Real-World	Clinical Trial
Ischaemic stroke risk at 1-year		
Baseline risk without anticoagulation (%)	5.7% (95% CI 5.5 - 6.0)	5.1% (95% CI 4.9 - 5.3)
Anticoagulation-mediated risk (%)	1.7% (95% CI 1.1 - 2.6)	1.3% (95% CI 0.8 - 1.8)
Absolute risk reduction (%)	4.0%	3.8%
$NNT_{benefit}$	25	27
Major bleeding risk at 1-year		
Baseline risk without anticoagulation (%)	2.3%	2.3%
Anticoagulation-mediated risk (%)	3.3% (95% CI 2.4 - 4.4)	3.9% (95% CI 3.1 - 4.8)
Absolute risk increase (%)	1.0%	1.6%
NNT_{harm}	100	63
NNT_{net}	34	46