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Preoperative Management of Blood Thinning Agents During Cutaneous Surgery: the need for an individualised approach

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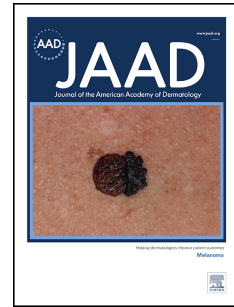
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33 Key words: dermatologic surgery, blood thinning medications, anticoagulant, antiplatelet,  
34 bleeding, risk, stroke

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40 Taylor *et al.*<sup>1</sup> concluded that in Mohs Micrographic Surgery the risk of bleeding is very low  
41 and advocate staying on blood-thinning medications.<sup>1</sup> This is encouraging, however,  
42 complications arising from the documented bleeding events including skin graft failure and  
43 secondary infection, were not stated. This is important to know for the procedure outcome.

44 We propose a patient-centred approach when considering continuing or withholding blood-  
45 thinning medications during cutaneous surgery, taking into account the risk:benefit ratio of  
46 the medication and surgery. A fictional case will demonstrate this:

47 A 66-year-old diabetic female with atrial fibrillation, on a direct oral anticoagulant (DOAC)  
48 for stroke prevention, is due to have a 4cm squamous cell carcinoma on her scalp excised to  
49 the periosteum with a split-thickness skin graft repair.

50 The bleeding risk should be balanced against the risk of withholding the DOAC.  
51 CHA(2)DS(2)-VASc score predicts the risk of stroke,<sup>2</sup> and this patient scores 3 (sex, age and  
52 diabetes mellitus) which equates to a risk of 37 per 1000 people in one year having a stroke if  
53 not anticoagulated.<sup>3</sup> Therefore, this patient's risk of stroke on one day if not anticoagulated is  
54 estimated as 1 in 9865  $((37/1000)/365)$ ; although surgery-associated stress may increase this  
55 risk. The bleeding risk should be reviewed by assessing patient risk factors and their  
56 anticoagulant medication. A dermatologist cannot assume what is an acceptable risk to a  
57 patient nor presume to tell a patient to stop medications without a risk:benefit discussion;  
58 quantifying the risks may help. In the UK the Montgomery judgement conveys this concept  
59 and is a legal principle in informed consent.<sup>4</sup> It ruled that doctors have "a duty to take  
60 reasonable care to ensure that the patient is aware of any material risks involved".<sup>4</sup>

61 Careful consideration of blood-thinners should be given in other complex reconstructions eg.  
62 paramedian flap repair, local skin flaps, hard to compress sites eg. periocular, where  
63 excessive bleeding can be problematic. The anticoagulant should be considered. Warfarin

64 requires a longer cessation period (5-10 days) compared to DOACs (24-48 hours) to  
65 normalise coagulation and once restarted takes longer to achieve therapeutic anticoagulation,  
66 therefore it has an increased risk of thromboembolism on cessation compared to DOACs.  
67 Nuanced strategies may be considered; egs. swapping clopidogrel for aspirin as it is  
68 associated with less bleeding, performing surgery at the DOAC trough level, stopping one of  
69 two blood-thinning medications or adjusting the medication so that it has reduced but not  
70 zero efficacy. The patient's cardiologist or primary care physician should be consulted if  
71 modification is required.

72 The American College of Cardiology recommends performing procedures with uninterrupted  
73 anticoagulation when there is 'no clinically important bleeding risk'<sup>5</sup> which we suggest would  
74 be most dermatologic surgery. It may never be appropriate to stop blood-thinning medications  
75 in patients with coronary drug-eluting stents or valvular heart disease. However, there is a  
76 case for withholding/adjusting these medications when the risk:benefit ratio is favourable eg.  
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78 emphasise undertaking individual patient assessments and involving patients in the decision.

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## 80 References

- 81 1. Taylor O, Carr C, Greif C, Garcia A, Tran S, Srivastava D, Nijhawan RI.  
82 Postoperative Bleeding Complications Associated with Blood Thinning Agents during  
83 Mohs Micrographic Surgery: A Retrospective Cohort Study. *Journal of the American*  
84 *Academy of Dermatology* 2020; doi: <https://doi.org/10.1016/j.jaad.2020.06.011>
- 85 2. Lip GYH, Nieuwlaat R, Pisters R, Lane DA, Crijns HJGM. Refining Clinical Risk  
86 Stratification for Predicting Stroke and Thromboembolism in Atrial Fibrillation Using

- 87 a Novel Risk Factor-Based Approach: The Euro Heart Survey on Atrial Fibrillation.  
88 *Chest* 2010;137(2):263-272.
- 89 3. National Institute for health and care excellence (NICE). Atrial fibrillation: medicines  
90 to help reduce your risk of a stroke – what are the options? Patient decision aid.  
91 NICE, 2014. Available from:  
92 [https://www.nice.org.uk/guidance/cg180/resources/cg180-atrial-fibrillation-update-](https://www.nice.org.uk/guidance/cg180/resources/cg180-atrial-fibrillation-update-patient-decision-aid-243734797)  
93 [patient-decision-aid-243734797](https://www.nice.org.uk/guidance/cg180/resources/cg180-atrial-fibrillation-update-patient-decision-aid-243734797) [accessed 28/06/2020].
- 94 4. Montgomery v Lanarkshire Health Board [2015] UKSC 11, paragraph 87. Available  
95 from:  
96 <https://www.supremecourt.uk/cases/docs/uksc-2013-0136-judgment.pdf> [accessed  
97 28/06/2020].
- 98 5. Doherty JU, Gluckman TJ, Hucker WJ et al. 2017 ACC Expert Consensus Decision  
99 Pathway for Periprocedural Management of Anticoagulation in Patients With  
100 Nonvalvular Atrial Fibrillation: A Report of the American College of Cardiology  
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- 152 1. Taylor O, Carr C, Greif C, Garcia A, Tran S, Srivastava D, Nijhawan RI.  
153 Postoperative Bleeding Complications Associated with Blood Thinning Agents during  
154 Mohs Micrographic Surgery: A Retrospective Cohort Study. *Journal of the American*  
155 *Academy of Dermatology* 2020; doi: <https://doi.org/10.1016/j.jaad.2020.06.011>
- 156 2. Lip GYH, Nieuwlaat R, Pisters R, Lane DA, Crijns HJGM. Refining Clinical Risk  
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159 *Chest* 2010;137(2):263-272.
- 160 3. National Institute for health and care excellence (NICE). Atrial fibrillation: medicines  
161 to help reduce your risk of a stroke – what are the options? Patient decision aid.  
162 NICE, 2014. Available from:  
163 [https://www.nice.org.uk/guidance/cg180/resources/cg180-atrial-fibrillation-update-](https://www.nice.org.uk/guidance/cg180/resources/cg180-atrial-fibrillation-update-patient-decision-aid-243734797)  
164 [patient-decision-aid-243734797](https://www.nice.org.uk/guidance/cg180/resources/cg180-atrial-fibrillation-update-patient-decision-aid-243734797) [accessed 28/06/2020].
- 165 4. Montgomery v Lanarkshire Health Board [2015] UKSC 11, paragraph 87. Available  
166 from:  
167 <https://www.supremecourt.uk/cases/docs/uksc-2013-0136-judgment.pdf> [accessed  
168 28/06/2020].
- 169 5. Doherty JU, Gluckman TJ, Hucker WJ et al. 2017 ACC Expert Consensus Decision  
170 Pathway for Periprocedural Management of Anticoagulation in Patients With  
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