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Review

Bleeding on the cutting edge: A systematic review of anticoagulant and antiplatelet continuation in minor cutaneous surgery



Alexander Isted *, Lilli Cooper, R. James Colville

Department of Plastic Surgery, St George's Hospital, Blackshaw Road, London, UK

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KEYWORDS

Minor cutaneous surgery;
Haemorrhage;
Aspirin;
Warfarin;
Clopidogrel;
DOAC

Summary Background: Anticoagulant and antiplatelet (AC/AP) use is common and practice surrounding AC/AP continuation or cessation peri-operatively for minor cutaneous surgery lacks evidence-based consensus.

Objective: To determine the risks of haemorrhagic and thromboembolic complications associated with the continuation or cessation of AC/AP therapy in minor cutaneous surgery.

Methods: A systematic literature search was conducted using PubMed, MEDLINE, Embase and CENTRAL, to identify all articles involving the use of AC/AP in patients undergoing minor cutaneous surgery, including skin grafts and local flaps. Eligible studies were randomised control trials, prospective studies and retrospective studies in the English language. Studies investigating free-flap repairs, oculoplastic surgery and hand surgery were excluded.

Results: 30 studies included data from over 14,000 patients, of which more than 5000 took regular AC/AP therapy. Thromboembolic events were rare but carry high morbidity and even mortality, and in these studies three events were associated with cessation of AC/AP. There was no increase in haemorrhagic complications in patients taking aspirin monotherapy, but evidence is conflicting regarding warfarin and clopidogrel monotherapy, which shows a small increase in rate of bleeding complications. However, no increase in wound dehiscence, graft failure, wound infection or cosmetic outcome was seen. Too few studies investigated DOAC use to draw reliable conclusions. Data are sparse in comparing multiple versus single AC/AP regimens. Use of skin grafts or local flaps may have a greater complication rate than direct closure in patients on one or more AC/AP, but evidence is limited.

Conclusion: A case-by-case risk assessment is warranted in all patients but where possible, clinicians should prioritise meticulous haemostasis over cessation of agents.

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* Corresponding author. Department of Plastic Surgery, St George's Hospital, London SW17 0QT, UK.
E-mail address: a.isted@doctors.net.uk (A. Isted).

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Background

Anticoagulant and antiplatelet (AC/AP) use is common. Aspirin is the fourth most widely used medicine in the United Kingdom (UK), prescribed 28 million times in 2015.¹ Warfarin was prescribed 11.6 million times in the same year, which has doubled since 2005.¹ The modification of AC/AP doses in the perioperative period of minor cutaneous surgery requires a careful assessment of bleeding and thromboembolic risk.

Practice is highly variable and changing. A 2002 survey of United States (US) dermatologic surgeons reported that 80% of respondents omitted warfarin and 97% omitted aspirin pre-operatively some or all of the time.² A similar survey three years later of US Mohs micrographic surgeons showed that only 44% and 37% omitted warfarin and aspirin respectively.³ A 2011 survey of UK consultant plastic surgeons revealed that aspirin, clopidogrel and warfarin were stopped routinely by 50%, 40% and 43% of surgeons respectively in minor cutaneous surgery of the head and neck.⁴ More recently, a 2013 survey of German dermatologic surgeons highlighted significant heterogeneity in the handling of vitamin K antagonists (VKA).⁵ Variation was noted in the procedures in which they were omitted, the pre-operative duration for which they were held, and in the bridging practice with heparin/low molecular weight heparin (LMWH).

To add further complexity, the number of medicines in this class is expanding. The most commonly used agents have been summarised in [Table 1](#). Direct oral anticoagulants (DOACs), formerly NOACs, are an emerging therapy in both primary preventative anticoagulation, used in atrial fibrillation (AF), and as acute therapy for venous thromboembolic

disease such as deep vein thrombosis (DVT) and pulmonary embolism (PE). Despite increasing DOAC popularity, many clinicians are unfamiliar with their pharmacokinetics/ pharmacodynamics, monitoring and reversal, and evidence is scanty to support their continued use or cessation perioperatively in cutaneous surgery. Furthermore, newer antiplatelet agents are increasingly used first-line in management of acute coronary syndrome (ACS), such as ticagrelor and prasugrel.

AC/AP continuation is traditionally thought to compromise both the operating field and post-operative results, through excessive bleeding. Several case studies reported catastrophic complications associated with preoperative AC/AP cessation in the context of cutaneous surgery, including stroke,⁶⁻⁸ prosthetic valve thrombosis⁹ and pulmonary embolism secondary to deep vein thrombosis.⁹

Local guidelines on the management of AC/AP agents in minor cutaneous surgery are not widely used in practice.¹⁰ The British Society for Dermatological Surgery (BSDS) has recently issued guidance based on expert opinion.¹¹ The guidance emphasises the need for case-by-case risk profiling and outlines how long each agent should be held for, but lacks evidence-based advice from a systematic literature review. The American College of Chest Physicians issued guidelines in 2012, which stated that aspirin and vitamin K antagonist based anticoagulants should be continued peri-operatively, and a greater focus placed on haemostasis.¹²

Given the lack of consistency in perioperative AC/AP management and the changing landscape of these agents with the lack of evidence-based recommendations, a systematic review of the literature was performed.

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