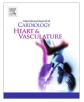
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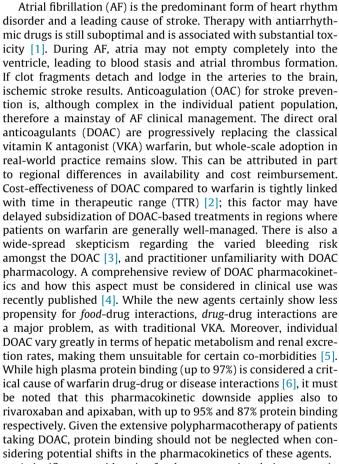
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Breaking bad: Higher risk of osteoporosis with vitamin K antagonists compared to direct oral anticoagulants in patients with atrial fibrillation



A significant consideration for the conservative choice to remain with warfarin is that data on comparative risk-benefit profiles in specific patient populations are still limited [5]. Patients with concomitant AF and acute coronary syndromes, cancer or on dialysis for example represent difficult scenarios for anticoagulant treatment [7–10]. Particularly in Asian patient populations, older patients or those with higher CHA₂DS₂-VASc scores, who might actually benefit most from a DOAC-based treatment, the prescription patterns in favor of DOAC over warfarin are evolving only slowly [11]. Even in European countries like Germany, use of the VKA phen-

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procoumone remains high, particularly for the management of patients with AF and cancer [8]. This is despite the accumulating evidence supporting superiority of DOAC in patient subpopulations, such as those with very low body weight or history of intracranial bleeding [12,13], or in women who generally present with a higher risk of stroke than male patients with AF [14].

Putting their anticoagulant actions aside, the DOAC may also present advantages over warfarin in terms of pleitropic actions including potential antiarrhythmic effects [15]. VKA barely penetrate tissues, but the tissue distribution of DOAC, and hence access to cellular sites of action of thrombin and activated factor X, is by comparison quite considerable [4]. Various DOAC therefore exert coagulation-independent effects by preventing coagulation factorstimulated signaling of protease-activated receptors in different organs including the heart [15]. In this issue of the International Journal of Cardiology Heart & Vasculature, Akhtar and colleagues highlight a further advantage of DOAC that has until recently been largely overlooked in its potential importance [16]. In a brief but comprehensive overview of the available literature, the authors identify a lower risk of osteoporosis in patients receiving DOAC compared to warfarin. VKA, by inhibiting vitamin K-dependent carboxylation of osteocalcin, can promote bone remodeling and fragility [17], although definitive data on bone tissue modification by VKA remains lacking [18,19]. More clear and convincing by contrast is the evidence for a lower risk of osteoporosis with DOAC versus warfarin as reviewed by Akhtar et al. [16]. During the writing of this editorial, another retrospective cohort study was published [20] that confirms the significantly reduced osteoporosis risk in patients with AF treated with rivaroxaban or apixaban, compared to warfarin – or dabigatran for that matter. This may be highly relevant for the treatment of frail and elderly patients, who are prone to falls, and whose propensity for both bone fractures and bleeding are much higher than in other patient groups. Studies like this by Akhtar et al. [16] clearly highlight the importance of considering the expanded personal risk profile, including osteoporosis of each patient when choosing the best suitable anticoagulant.

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Disclosures

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Anke C. Fender^{*,1} Dobromir Dobrev¹

Institute of Pharmacology, Medical Faculty,

University Duisburg-Essen, Germany

* Corresponding author at: Institute of Pharmacology, Medical Faculty, University Duisburg-Essen, Hufelandstr. 55,

45122 Essen, Germany.

E-mail address: anke.fender@uk-essen.de (A.C. Fender).

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