Folia Cardiologica 2017
tom 12, nr 5, strony 476–478
DOI: 10.5603/FC.2017.0089

ISSN 2353–7752

ST-elevation myocardial infarction in patient on chronic oral anticoagulation

Ostry zespół wieńcowy z uniesieniem odcinka ST u pacjenta przewlekle leczonego doustnym antykoagulantem

Artur Dębski, Paweł Tyczyński, Michał Ciszewski, Joanna Zalewska, Zbigniew Chmielak, Adam Witkowski

Department of Interventional Cardiology and Angiology, Institute of Cardiology, Warsaw, Poland

Abstract

Approximately 6–8% of patients undergoing percutaneous coronary interventions (PCI) have an indication for long-term oral anticoagulation with vitamin K antagonists (VKA) or novel oral anticoagulants due to various conditions. Primary PCI with adjunctive pharmacological therapy for ST-elevation myocardial infarction (STEMI) patients on chronic VKA treatment carry increased risk of bleeding, however, very few studies are available so far.

We describe a patient, who presented with STEMI and international normalized ratio of 4.5 and discuss possible treatment options.

Key words: STEMI, oral anticoagulation

Folia Cardiologica 2017; 12, 5: 476–478

Introduction

Approximately 6–8% of patients undergoing percutaneous coronary interventions (PCI) have an indication for long-term oral anticoagulation (OAC) with vitamin K antagonists (VKA) or novel oral anticoagulants (NOAC) due to various conditions. Primary PCI with adjunctive pharmacological therapy for ST-elevation myocardial infarction (STEMI) patients on chronic VKA treatment carry increased risk of bleeding, however very few studies are available so far.

In an impressive United States (US) registry of 120,270 STEMI patients treated with primary PCI, 3101 patients (2.6%) were on chronic VKA treatment, which was associated with a significant increase in in-hospital major bleeding risk compared to no VKA therapy. Surprisingly, admission international normalized ratio (INR) ≥ 2.0 was not associated with an increase in bleeding risk compared to INR < 2.0. However, several limitations of this registry were raised by the authors, just to mention two of them. There were only a small number of patients with INR > 3.0 (what precluded adequate statistics). Secondly, no information was available, whether anticoagulation reversing agents (vitamin K or fresh frozen plasma) were used after admission to hospital [2].

Case report

61-years-old male patient presented with STEMI of inferior wall. His previous history included chronic atrial fibrillation on warfarin therapy, acute myocardial infarction and arterial hypertension. Since the admission INR in the referring

Address for correspondence: dr n. med. Paweł Tyczyński, Klinika Kardiologii Interwencyjnej i Angiologii, Instytut Kardiologii, ul. Alpejska 42, 04–628 Warszawa, Poland, e-mail: medykpol@wp.pl

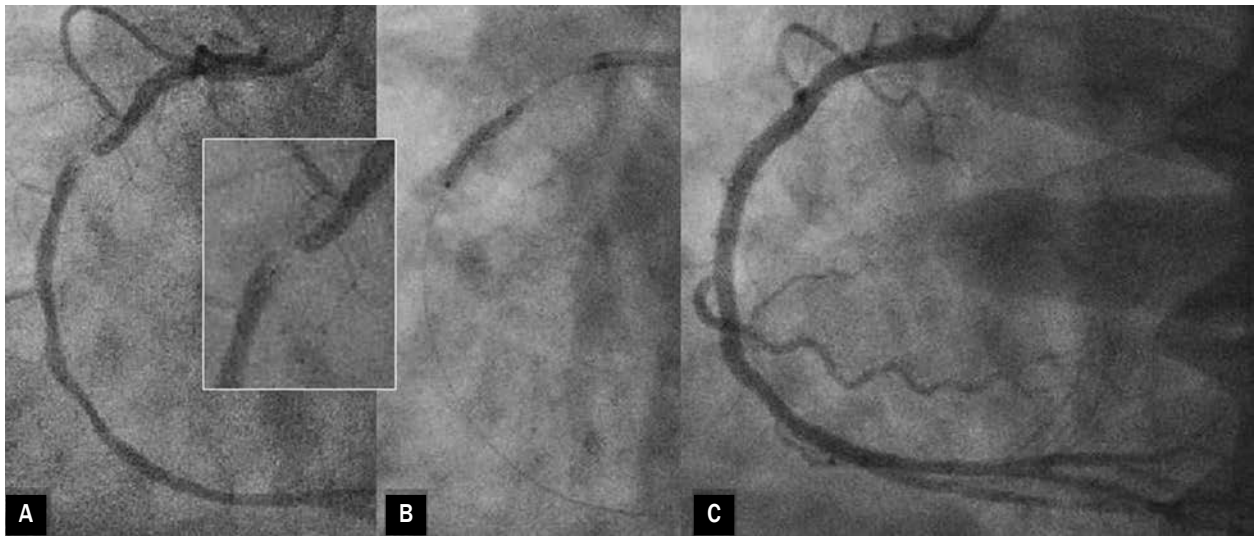

Figure 1A–C. Angiography of the right coronary artery (RCA): **A.** Tight stenosis in the mid RCA with the presence of intracoronary thrombus (magnification); **B.** Balloon angioplasty; **C.** Final results with TIMI 3 flow

hospital was 4.5, 10 mg of vitamin K was administered intravenously, with subsequent INR drop to 4.0 and 1.3 seven hours later at our institution. Additionally, he received loading dose (300 mg) of acetylsalicylic acid and half of the dosing dose (300 mg) of clopidogrel. Urgent coronary angiography via radial artery revealed tight stenosis in the mid segment of the right coronary artery (RCA) with the presence of intracoronary thrombus, and non-significant lesions in the left coronary artery. Primary PCI of the RCA with implantation of 3.5 × 28 mm drug eluting stent was performed. Good angiographic result with TIMI 3 flow was achieved (Figure 1). Since current INR was not known yet during primary PCI, 5000 IU of unfractionated heparin was administered. Maximal troponin T was 693 ng/L (upper normal limit < 14). Echocardiography revealed significantly impaired left ventricle systolic function with akinesia of inferior wall and apical segments (ejection fraction 33%). No in-hospital bleeding was observed. VKA treatment was re-started.

Discussion

No specific regimen for anticoagulation approach for such type of patients is suggested in 2012 STEMI guidelines of the European Society of Cardiology (ESC). 2015 ESC non-STEMI (NSTEMI) guidelines indicate some anti-bleeding precautions, all of them only with the class C of evidence (expert opinion): 1) in patients on VKA unfractionated heparin (UFH) if INR value > 2.5 should be avoided; 2) during PCI, additional parenteral anticoagulation is recommended, irrespective of the timing of the last VKA dose, if INR is 2.5 or less, and in patients on NOAC, regardless of the timing of the last administration of NOAC, add additional low-dose parenteral anticoagulation (e.g. enoxaparin 0.5 mg/kg i.v. or UFH 60 IU/kg; 3) uninterrupted therapeutic anticoagulation with VKA or NOAC should be considered during the periprocedural phase.

Data from meta-analysis indicate, that radial access seems to be obvious [3] for the benefit in mortality and major bleeding. Nonetheless, these data should be interpreted with caution. As noted by Mahmud et al, individually evaluating the 3 major and heavily weighted studies included in this meta-analysis show the lack of a mechanistic link between individual patient access site complications, bleeding, and mortality [4].

Conclusion

Individual pharmacological approach with favor of bivalirudin is advisable in STEMI patients treated with primary PCI, who are presenting with significantly increased INR. Radial access is preferred.

Conflict of interest(s)

The authors declare no conflict of interest.

Streszczenie

Około 6–8% pacjentów poddawanych przezskórnej angioplastyce wieńcowej (PCI) ma wskazania do przewlekłej terapii przeciwkrzepliwej antagonistami witaminy K (VKA) lub nowymi lekami antykoagulacyjnymi. Pierwotna PCI u pacjenta leczonego dodatkowo z powodu zawału serca z uniesieniem odcinka ST (STEMI), poddanego jednocześnie przewlekłej terapii VKA, jest obarczona istotnie zwiększonym ryzykiem krwawienia. Dostępnych jest jednak niewiele badań odnoszących się do tego ważnego scenariusza klinicznego.

Opisano pacjenta ze STEMI, u którego wyjściowy międzynarodowy współczynnik znormalizowany wynosił 4,5.

Słowa kluczowe: STEMI, doustna antykoagulacja

Folia Cardiologica 2017; 12, 5: 478–478

References

1. Roffi M, Patrono C, Collet JP, et al. Management of acute coronary syndromes in patients presenting without persistent ST-Segment elevation of the European Society of Cardiology. 2015 ESC Guidelines for the management of acute coronary syndromes in patients presenting without persistent ST-segment elevation: Task Force for the Management of Acute Coronary Syndromes in Patients Presenting without Persistent ST-Segment Elevation of the European Society of Cardiology (ESC). Eur Heart J. 2016; 37(3): 267–315, doi: 10.1093/eurheartj/ehv320, indexed in Pubmed: 26320110.
2. Karrowni W, Wang TY, Chen AY, et al. Chronic vitamin K antagonist therapy and bleeding risk in ST elevation myocardial infarction patients. Heart. 2015; 101(4): 264–270, doi: 10.1136/heartjnl-2014-305931, indexed in Pubmed: 25336230.
3. Karrowni W, Vyas A, Giacomino B, et al. Radial versus femoral access for primary percutaneous interventions in ST-segment elevation myocardial infarction patients: a meta-analysis of randomized controlled trials. JACC Cardiovasc Interv. 2013; 6(8): 814–823, doi: 10.1016/j.jcin.2013.04.010, indexed in Pubmed: 23968700.
4. Mahmud E, Patel M. Radial access for ST-segment elevation myocardial infarction interventions: does it really lower mortality? JACC Cardiovasc Interv. 2013; 6(8): 824–826, doi: 10.1016/j.jcin.2013.06.004, indexed in Pubmed: 23968701.