Online publish-ahead-of-print 23 September 2005

doi:10.1093/eurheartj/ehi545

Management and prevention of thrombotic stent occlusion

We read with a great interest, the paper by Wenaweser et al.,1 who report the efficacy and outcome of emergency percutaneous coronary interventions in patients with stent thrombosis.

Recently, we published our data on 1519 consecutive patients who underwent 2020 stent implantations and were discharged on dual anti-platelet therapy. We compared the short- and long-term risks of thrombotic stent occlusion (TSO) and mortality in patients given clopidogrel or ticlopidine.2,3

The rates of TSO during the first year of follow-up, in our study, were 1.8, 0.7, and 2.8% in the whole group, the ticlopidine group and the clopidogrel group (P < 0.01). A multivariate model showed that clopidogrel (vs. ticlopidine) treatment was the sole predictor of TSO (OR = 5.4, 95% CI = 1.2–24.1, P = 0.028). Of even greater concern, clopidogrel treatment was associated with an increased risk of 1-year mortality (OR = 1.8, 95% CI = 1.2–2.8). Our data are in agreement with those published by Mueller et al.,4 who reported that the extended follow-up data of the randomized trial performed by Mueller et al.5 and our own experience. Thus, we have previously investigated the incidence of stent thrombosis following bare metal stent implantation in 4500 consecutive patients.6 While the overall rate of stent thrombosis was 0.8%, thrombotic stent occlusion occurred in 1.9% of patients with clopidogrel and in 0.6% of patients with ticlopidine treatment (P < 0.05). The mechanism for the observed difference in efficacy between ticlopidine and clopidogrel remains unclear but has been related to differences in drug-drug interaction as well as dose and length of treatment with the respective thienopyridine. Stent thrombosis has gained even more importance in the era of drug eluting stents and future studies with long-term follow-up will have to determine the optimal antiplatelet therapy.

References

5. Ark Wolak
Doron Zahger
Department of Cardiology
Faculty of Health Sciences
Soroka University Medical Center
Ben Gurion University of the Negev
Beer Sheva 84101
Israel
Tel: +972 8 640 0951
Fax: +972 8 623 8248
E-mail address: arikwt@bgu.ac.il
(A. Wolak)

doi:10.1093/eurheartj/ehi546

Online publish-ahead-of-print 23 September 2005

The management and prevention of thrombotic stent occlusion: reply

Dual antiplatelet therapy with aspirin and thienopyridines has been shown superior to treatment with oral anticoagulation and aspirin alone in the prevention of major adverse cardiac events following coronary stent implantation.1 The therapeutic benefit of ticlopidine was somewhat limited by rare but potentially serious adverse effects such as neutropenia and thrombocytopenia. The advent of clopidogrel was associated with a superior haematological safety profile but comparable efficacy in three randomized trials and has largely replaced the use of ticlopidine.2–4

Notwithstanding, the comparative studies had some limitations: (1) the trials were underpowered to detect small but potentially important differences in the incidence of stent thrombosis; (2) the studies differed with respect to the loading dose regimen; and (3) the follow-up period was limited to 30 days. In light of these limitations, the report of Dr Wolak and colleagues of a higher incidence of stent thrombosis with clopidogrel (2.8%) than ticlopidine (0.7%) in an all-comer population of 1519 consecutive patients undergoing bare metal stent implantation is of interest. Their observation is echoed by the extended follow-up data of the randomized trial reported by Mueller et al.5 and our own experience. Thus, we have previously investigated the incidence of stent thrombosis following bare metal stent implantation in 4500 consecutive patients.6 While the overall rate of stent thrombosis was 0.8%, thrombotic stent occlusion occurred in 1.9% of patients with clopidogrel and in 0.6% of patients with ticlopidine treatment (P < 0.05). The mechanism for the observed difference in efficacy between ticlopidine and clopidogrel remains unclear but has been related to differences in drug-drug interaction as well as dose and length of treatment with the respective thienopyridine. Stent thrombosis has gained even more importance in the era of drug eluting stents and future studies with long-term follow-up will have to determine the optimal antiplatelet therapy.

References

Meijboom and coworkers\(^1\) reported on the root growth in the Marfan syndrome. Comment on pregnancy and aortic root diameter.

We should recommend to monitor all pregnant women with Marfan syndrome very carefully and closely, as suggested in many previous studies,\(^2\),\(^3\) because aortic dissection does not only depend on aortic diameter progression and may also occur in Marfan patients with a normal aortic diameter.\(^5\)

Summarizing, this study did not provide real evidence for the conclusion that ‘Pregnancy in women with Marfan syndrome seems to be relatively safe up to an aortic root diameter of 45 mm’. We should recommend to monitor all pregnant women with Marfan syndrome very carefully and closely, as suggested in many previous studies,\(^2\),\(^3\) because aortic dissection does not only depend on aortic diameter progression and may also occur in Marfan patients with a normal aortic diameter.\(^5\)

Thank you for the opportunity to respond to the comment from Hager and co-workers. It is an immense tragedy when a young woman dies during pregnancy. We agree with Hager and co-workers that there is no definite safe aortic root diameter for women with Marfan syndrome to get pregnant. Dissections may occur at normal aortic diameters in patients with Marfan syndrome. Should we therefore advise all women with Marfan syndrome against pregnancy? During recent years, a panel of international experts has reached consensus that pregnancy can be tolerated in women with Marfan syndrome with a slightly dilated aortic root.\(^1\) This expert consensus is being validated by our findings, which indicate that pregnancy is relatively safe in women with Marfan syndrome and an aortic root diameter up to 45 mm.\(^7\) However, women with a previous dissection should not get pregnant. We agree with Hager et al. that all patients with Marfan syndrome deserve close and careful monitoring before, during, and after pregnancy. Before pregnancy, all women should undergo a magnetic resonance angiogram to investigate if there is dilatation in other parts of the aorta. Also, frequent echocardiographic imaging should be performed throughout pregnancy and the postpartum period to check for progressive aortic dilatation. In the future other risk factors for aortic dissection, such as aortic elasticity, might become available to

## References