Practices and Perceptions of Doctors for Patients on Anti-platelets During Dental Surgery: A National Survey

Rita Rai · B. Mohan · Vibha Babbar ·
Namita Dang

Received: 15 February 2013 / Accepted: 13 April 2013 / Published online: 1 May 2013
© Association of Oral and Maxillofacial Surgeons of India 2013

Abstract

Purpose Marked variations are noticed in the practices about anti-platelet therapy during dental surgery due to fear of thrombotic events versus bleeding. The main aim of this survey was to study the prevalent practices and perceptions amongst dentists, physicians and cardiologists for stopping anti-platelet agents (APA) in patients undergoing dental extractions.

Materials and Methods A questionnaire consisting of 5 questions was distributed to 800 doctors. Questions were related to their perception about increased bleeding complications versus thrombotic risks in cardiac patient on anti-platelet agents undergoing dental surgery. The data was analyzed using Chi-square test and Z-test.

Results Total number of responders was 428 from a total of 800 doctors. It consisted of two groups, group I (325) included physicians and group II (103) included dentists. 82.5 % of dentists believed that bleeding increased if APA are continued whereas 42.77 % of physicians felt the opposite ($p = 0.0000035$). When asked about stopping APA in patients of stable angina and stroke, both groups had similar answers (63.1 vs. 60.92 %). For patients with medicated stents 70.76 % of physicians were not in favor of stopping APA but 49.51 % dentists believed that it should be stopped ($p = 0.0001$). However, regarding their attitude towards stopping APA in patients with bare metal stents or post CABG, most of the doctors felt that it should

be stopped (48.61 vs. 42.71 %). Discrepancy regarding the number of days for which APA should be withdrawn was found among both the groups.

Conclusion Marked variation was found amongst participants in this survey despite international guidelines on APA being used during dental surgery. There is a need for national guidelines to be laid on this issue and dissemination of knowledge among the practicing doctors.

Keywords Anti-platelets · Survey · Dental surgery · Bleeding · Thromboembolism · Guidelines

Introduction

Anti-platelet agents (APA) are extensively used in the prevention and management of arterial thrombosis. They are one of the cornerstones of primary and secondary prevention of stable and unstable coronary artery disease (CAD) and are especially important after percutaneous intervention (PCI) [1]. Dual APT is being widely used because of increased use of medicated stents. If the APT is withdrawn, the affected patients face an increased risk of thromboembolic cardiovascular events and also carry a very high risk for stent thrombosis which can be life threatening [2]. The number of patients taking these drugs is gradually increasing in the general population. Owing to this, a general dental practitioner comes across this group of patients more often in his/her dental practice. Dental surgery, especially extractions, in such patients is common and their management has always been a point of discussion and controversy, making it a difficult task. Because of anticipated post-operative hemorrhage after invasive dental procedures, it prompts the dentist to stop the APA [3]. However, it has been highlighted in many studies that

R. Rai (✉) · V. Babbar · N. Dang
Department of Dentistry, Dayanand Medical College and
Hospital, Ludhiana 141001, India
e-mail: dr.ritarai@yahoo.com

B. Mohan
Department of Cardiology, Dayanand Medical College and
Hospital, Ludhiana, India

excessive post-operative hemorrhage is not attributed to APA [4–6]. Stopping APT increases the risk of stroke, myocardial infarction (MI) or stent thrombosis. Patients are at increased risk of permanent disability or death if they stop APT prior to dental procedure than if they continue it [7]. Thrombosis and the complicating emboli can be more life threatening in terms of morbidity and mortality than all of the hemorrhagic disorders combined [8].

According to some authors, a biological platelet rebound phenomenon [9] occurs when aspirin therapy is interrupted which creates a pro-thrombotic state, that may lead to a fatal thromboembolic event. There is marked variation in the perceptions about APT and the current recommendation for the surgical treatment of these patients [8]. Either because of lack of knowledge or legal aspect, a practitioner generally asks the patient to stop APA inspite of the current guidelines suggesting the continuation of the APT. In the real world, the practices are not being followed as per the guidelines given by UKMi/NHS [2]. The major purpose of this study was to assess the prevalent practices and perceptions among dentists, physicians and cardiologists in India.

Material and Methods

Initially, a questionnaire of 7 questions was formatted which was circulated amongst the faculty members of Dayanand Medical College and Hospital and discussed. It was finalized that 5 questions would cover the aim of the present study (Table 1). The survey was undertaken to assess the practices of dentists, physicians and cardiologists in patients on APT requiring dental treatment. A semi-structured questionnaire was distributed at random to about 800 doctors in India via e-mails, conferences, postage between 3rd January and 31st March 2011. The complete data could be obtained from 460 doctors out of which complete answers could be obtained from 428 doctors. Two groups were formed. Group 1 (325) included physicians and cardiologists and group II (103) consisted of dentists and specialist dentists. The questions were related to their perception about increased bleeding complication versus thrombotic risk in cardiac patients on anti-platelets undergoing dental surgery. The data was recorded in a database using EPI-INFO software and analyzed using Chi-Square test and Z-test. The *p* value, $p < 0.05$, was considered significant statistically.

Results

Four hundred and twenty-eight doctors gave complete answers to the set of 5 questions. The response rate to the

survey was 53.5 %. 75.9 % of physicians and 24.06 % of dentists submitted the completed questionnaire (Tables 2, 3).

When asked about their attitude towards continuation of APA during dental extractions, 85.62 % of the dentists believed that bleeding increased if the APA are continued before invasive dental procedures. Whereas, 42.77 % of the physicians thought that there was no significant bleeding even if it is continued. Dentists were more apprehensive regarding bleeding in such patients (*p* value 0.0000035). Their concern regarding bleeding was significantly much more than the physicians.

With regards to their attitude towards stopping APA before dental extractions in patients of stable angina and stroke, majority of the doctors in both the groups had similar answers (63.1 vs. 60.92 %). Their concerns were almost the same that it should be stopped in this group of patients (*p* value 0.6).

However, for patients with medicated stents, 70.76 % of cardiologists and physicians were not in favor of stopping APA before dental extractions but 49.51 % of dentists believed that APA should be stopped in patients with medicated stents. Their views were markedly dissimilar (*p* value 0.001).

On the other hand, when asked about their perceptions towards stopping APA before dental procedures in patients with bare metal stents or post CABG, 48.61 % cardiologists and physicians and 42.71 % dentists felt that APA should be discontinued before any oral surgical procedure (*p* value 0.29).

Evident discrepancy was found regarding the days for which APA should be stopped before any dental extraction is carried out. It varied from 6 ± 3 days for dentists to 4 ± 2 days for physicians and cardiologists (*p* value 0.71).

Discussion

According to the current guidelines as laid down by UKMI/NHS 2009, for patients taking anti-platelet monotherapy, post-operative bleeding after dental procedures can be controlled using local haemostatic measures, for example, atraumatic extractions with aseptic conditions [2] (Table 4). Currently, due to the increasing number of coronary interventions and stent implantations justifying broad acceptance of longer duration of dual APT, the American Heart Association, the American College of Cardiology, the Society for Cardiovascular Angiography and Interventions, the American College of Surgeons, the American Dental Association, and the American College of Physicians have presented a consensus document which underscores the risks of premature termination of dual APT. However, many patients and health care providers

Table 1 Questionnaire on anti-platelet practices during dental procedures

ANTI-PLATELET PRACTICES DURING DENTAL EXTRACTIONS

DAYANAND MEDICAL COLLEGE & HOSPITAL

UNIT- HERO DMC HEART INSTITUTE, LUDHIANA

DEPARTMENT OF CARDIOLOGY AND DENTISTRY

Sr.No_____ QUALIFICATION_____

Questionnaire on anti-platelet practices during dental procedures.

1. Do you believe that continuation of anti-platelets during dental procedures increases significant bleeding?

Yes
NO
2. Do you recommend stopping anti-platelets before dental procedures in patients of stable angina/stroke?

Yes
No
3. Do you recommend stopping anti-platelets before dental procedures in patients with medicated stents?

Yes
No
4. Do you recommend stopping anti-platelet before dental procedures in patients with bare metal stents or post CABG?

Yes
No
5. If you stop anti-platelets then how many days before the procedure?
 Number of days _____

Table 2 Grouping of doctors

Group I = 325	
Physicians	M.B.B.S = 36
	M.D. = 210
Cardiologists	D.M. = 79
Group II = 103	
Dentists	B.D.S = 88
	M.D.S = 15

discontinue APA, which greatly increases the risk of stent thrombosis, acute MI and death [10]. Bleeding complications while inconvenient do not carry the same risks as

thromboembolic complications. Patients on aspirin and clopidogrel should not get their anti-platelet medication altered or stopped without consultation with the interventional cardiologist. Thromboembolic events associated with cessation of anti-platelet medication have only recently been identified [11]. A retrospective analysis of 475 patients with MI admitted to a hospital showed that 11 patients had discontinued APA within 15 days prior to admission, out of which 9 patients discontinued because of surgical procedure, 1 of which was a dental procedure. The dental patient had been stable and symptom free while on aspirin for 10 years but suffered MI 10 days after stopping APT [11]. The medical practitioners including the dental specialists are unfamiliar with the APA and the guidelines

Table 3 Statistical analysis of survey questions

Question	Group I		Group II		χ^2	<i>p</i> value
	Yes	No	Yes	No		
Q1	57.23 %	42.77 %	82.52 %	17.48 %	21.54	0.0000035
Q2	60.92 %	39.08 %	63.01 %	36.99 %	0.16	0.6
Q3	29.23 %	70.77 %	49.51 %	50.49 %	14.32	0.0001
Q4	48.61 %	51.39 %	42.71 %	57.29 %	1.09	0.29
Z-test						
Q5	4 ± 2 days		6 ± 3 days		Z = 0.37	0.71

Table 4 Recommendations for the management of patients on APA

Patients on single anti-platelet agent
Do not stop for dental procedures
Patients on concurrent aspirin and dipyridamole
Do not stop for dental procedures
Patients on concurrent aspirin and clopidogrel
Consult with the patient's cardiologist
Patient may need referral to dental hospital for the invasive dental procedures

Adapted from: Randall C [2]

for APT. They are also not familiar with the effects of premature withdrawal of these agents. The study shows a wide variation in the practices of both medical and dental faculties. There is a lack of consensus with regard to APA dosing before dental procedures.

This study showed that the doctor's practice of withdrawing therapy is not based on current guidelines. The practice of withholding the drugs during peri-operative period should be strongly discouraged.

The practice of dentists and medical specialists of cessation of APT before dental surgical procedures in patients with bare metal stents or CABG or in medicated stents needs to be modified. They have to be addressed to the current guidelines emphasizing on the thromboembolic fatalities associated with the stoppage of APT. Both a meticulous medical interrogation, along with a thorough clinical and radiographical examination are crucial. Consultation with the specialist (neurologist, cardiologist) is highly recommended for the correct evaluation of the cardiovascular risk. Apprehension regarding bleeding needs to be addressed.

Conclusions

In conclusion, majority of the practitioners in this study population show a marked variation in their practices regarding their approach to patients on APT which is contrary to the recommended guidelines. They are highly

conservative in their approach and their attitude. There is a wide variation amongst the participants in this survey despite having international guidelines of anti-platelet usage during dental surgery. The patients are subjected to high risk of thrombotic events on stoppage of APT. There is an urgent need for national guidelines to be laid down on this issue and most importantly, the dissemination of this knowledge amongst practicing doctors of both the specialities.

Acknowledgments The authors would like to thank Dr. Anurag Chaudhary for interpretation and statistical analysis of data and Dr. Sameer Kaura for his immense support.

References

1. Bassand JP, Hamm CW, Ardissino D et al (2007) Guidelines for the diagnosis and treatment of non ST-segment elevation acute coronary syndromes. *Eur Heart J* 28:1598–1660
2. Randall C (ed) (2010) Surgical management of the primary care dental patient on antiplatelet medication. Available from: <http://www.ukmi.nhs.uk/activities/specialistservices/>
3. Murphy J, Twohsig E, Williams M (2009) *J Ir Dent Assoc* 56:28–33
4. Spertus JA, Kettelkamp R, Vance C, Decker C, Jones PG, Rumsfeld JS et al (2006) Prevalence, predictors and outcomes of premature discontinuation of thienopyridine therapy after drug-eluting stent placements: results from the PREMIR registry. *Circulation* 113:2803–2809
5. Kovich O, Otley CC (2003) Thrombotic complications related to discontinuation of warfarin and aspirin therapy peri-operatively for cutaneous operation. *J Am Acad Dermatol* 48:233–237
6. Krishnan B, Shenol NA, Alexander M (2008) Exodontia and antiplatelet therapy. *J Maxillofac Surg* 66:2063–2066
7. Muritt JC, Bhatt DL (2002) The efficacy and safety of perioperative antiplatelet therapy. *J Thromb Thrombolysis* 13:97–103
8. Little JW, Miller CS, Henry RG (2002) Antithrombotic agents: implications in dentistry. *Oral Surg Oral Med Oral Pathol Oral Radiol Endod* 93:544–555
9. Scully C, Wolff A (2002) Oral surgery in patients on anticoagulant therapy. *Oral Surg Oral Med Oral Pathol Oral Radiol Endod* 94:57–64
10. Can M, Biteker M, Babur G et al (2012) Knowledge, attitude and perception of antiplatelet therapy among dentists in Central Eastern Turkey. *World J Cardiol* 4:226–230
11. Collet JP, Hunter D, Sieg PG (2000) Myocardial infarction after aspirin cessation in stable coronary artery disease patients. *Int J Cardiol* 76:257–258