Letters to the Editor

Letter regarding “Are cardiovascular risk parameters and glycemic levels associated with periodontitis in type 2 diabetes patients? A clinical study.” Indian Heart Journal 2018; 70: 430–432

We read with profound interest the research brief entitled “Are cardiovascular risk parameters and glycemic levels associated with periodontitis in type 2 diabetic patients? A clinical study” by Dhir and Vivek Kumar. This study is of great clinical and epidemiological relevance to us as most mainland Indians suffer from periodontitis and tobacco habits are prevalent among them. It is well documented that periodontitis is a potential trigger for systemic inflammation. The acute-phase proteins may act as intermediary steps in the pathway from periodontal infection to cardiovascular disease. One of the famous indologists of modern India late Rai Krishna Das who suffered from hypertension and stroke used to compare poor oral hygiene to 32 poisonous snakes in the mouth, detrimental to health, particularly to cardiovascular health, as early as in 1972. There is a good amount of data available in the literature suggesting periodontitis as a possible risk factor for cardiovascular diseases. In the aforementioned article, vascular risk associated with periodontitis has been well brought out, but two points need to be discussed.

First issue is that of the vascular and periodontitis risk associated with tobacco needs clarity on the type of tobacco usage: smoking, smokeless tobacco, or both. It seems that authors have considered smoking alone in this article, not including the history of tobacco usage. This is an omission that deprives us of any possible role of tobacco as a risk for periodontitis and/or diabetes.

Second, and more importantly, is the mismatch between units and values dealing with metabolic parameters. Units of sugar and lipids are purported to be in mmol/L, but values given seem to be in mg/dL. This needs to be corrected lest the reader goes with alarmingly high values of cholesterol and triglycerides in these cases, which in our opinion may not be the case.

This article reiterates that because smoking and oral tobacco usage are controllable environmental risk factors for various systemic conditions; their detailed mention cannot be overemphasized in case of history recording for every cardiovascular/diabetes case. Also, a thorough examination of the teeth and supporting structures while dealing with the aforementioned cases is imperative.

Conflict of interest

None.

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Authors’ Response

To the Editor,

We thank Drs N Sharma and S Dwivedi for their interest in our article. It is really heartening for us. We also thank them for their valid observations. There was indeed a typographical error in the measurement units mentioned. The error is being rectified. Thank you for pointing this out.

Regarding the type of tobacco consumption, in our study, we had collected information about smoking only. We agree that information about other forms of tobacco consumption would have provided us additional insights into the relationship between tobacco usage, periodontitis, and cardiovascular risk. However, at the same time, we would like to emphasize that among different forms of tobacco consumption, smoking has the strongest association with the link between periodontitis and cardiovascular disease. Previous studies have shown that periodontitis in combination with smoking increases systemic inflammatory burden and associated cardiovascular risk. Smoking has a detrimental effect on the incidence and progression of...
Thrombolysis may be a universal therapeutic option in left-sided prosthetic valve thrombosis

To the Editor:

I have read with great interest the article published by Kathirvel et al. “Tenecteplase versus streptokinase thrombolytic therapy in patients with mitral prosthetic valve thrombosis.” The authors conducted a study in which they compared two modalities of thrombolytic therapy (TT) (streptokinase vs tenecteplase) in patients with mechanical prosthetic valve thrombosis (PVT) in mitral position.

They reported a favorable outcome with tenecteplase as compared with streptokinase and a complete therapeutic success rate of more than 75% in these patients.

Despite the limitations of the study, mainly because of the low number of patients included, it recognizes TT as the first-choice therapeutic option in PVT in developing countries such as India.

I would like to emphasize the importance of TT as an initial therapeutic option and highlight that this treatment is not just for developing countries; rather, the emerging evidence supports it to be a universal intervention in patients with PVT.

For several years, we have recommended TT as the first therapeutic indication in PVT.

Our meta-analysis provides evidence that suggests a primary role for thrombolysis in patients with PVT, and we have concluded that surgery has not been proved superior to thrombolysis.

In the Ultra-slow PROMETE trial, the authors reported 90% of therapeutic success rate. The overall complication rate was 6.7% (3.3% nonfatal major, 2.5% minor, and 0.8% death). The authors concluded that the TT was efficient with low mortality rates and low risk of nonfatal complications.

Regarding the therapeutic intervention in PVT, there has been a remarkable change in the latest update of the American Heart Association/American College of Cardiology guidelines for the management of valvular heart diseases. It matches the indication level and emphasizes the need for urgent initial treatment with either slow-infusion low-dose fibrinolytic therapy or emergency surgery in patients with a left-sided mechanical PVT presenting with symptoms of valve obstruction (recommendation class I-B).

In addition, this last update adds a group of clinical factors to be considered when taking therapeutic decisions, including the choice of the patient and the institutional capacity.

Conflicts of interest

The authors have no conflicts of interest to disclose.

References


Two and real-time three dimensional transesophageal echocardiography guided thrombolytic therapy for prosthetic valve thrombosis is crucial

To the Editor,

We have read with great interest the article by Kathirvel et al which was recently published in the Indian Heart Journal.1 We commend the authors for this important report describing clinical outcomes with tenecteplase (TNK) versus streptokinase thrombolytic therapy (TT) in patients with mitral prosthetic valve thrombosis (PVT). However, at the same time, we would like to highlight some important issues that need to be addressed.

First, TNK, a tissue-type plasminogen activator modified by 3 amino acids from alteplase, has the potential to deliver this kind of formulation. It has greater fibrin specificity resulting in no evidence of systemic fibrinogen depletion and resistance to plasminogen activator inhibitor resulting in an initial serum half-life of 20 min and a mean terminal half-life of 100 min, such that it can be conveniently given as a bolus dose (over 5 s) on a weight-adjusted basis. At a dose of 0.5 mg/kg, it has been a standard of care for treating acute ST-segment elevation myocardial infarction for 15 years.2 In this study, 12 of the 52 patients with PVT were treated with a 24-h infusion of TNK. According to the manufacturer's guidelines, the reconstituted solution should be diluted with sterile water for injection up to a maximal concentration of 5 mg TNK per ml, and it should be administered as an intravenous single bolus dose over 5 s. The remaining TNK solution, if needed, may be kept in the vial for up to 8 h, but at 2–8 °C temperature.3 How were the biological stability and efficacy of reconstituted solution ensured during the 24-h infusion?

Second, transesophageal echocardiography (TEE) usually offers inadequate images in making differential diagnosis of thrombus, pannus, and vegetation due to acoustic shadowing and low resolution caused by prosthetic material. On the other hand, transesophageal echocardiography (TEE) with its high resolution may differentiate thrombus from pannus formation and vegetation in patients with PVT. Furthermore, TEE is also of great value with regard to the assessment of mobility, location, and thrombus size; this may assist in the decision regarding surgery, anticoagulation, or TT. In addition, a large residual nonobstructive PVT may be present in some patients who have experienced successful TT, but it may be missed during TEE study. The detection of nonobstructive PVT can be challenging, particularly when Doppler parameters are within normal limits and clinical findings are subtle. Hence, nonobstructive PVT can even be missed with conventional 2D imaging. In comparison, real-time three-dimensional (RT-3D) TEE, over the last decade, has emerged as an important clinical tool in the assessment of PVT. RT-3D TEE has higher spatial resolution, resulting in images with unparalleled anatomic detail when compared with 2D imaging. The diagnostic accuracy for detecting PVT has improved after the introduction of RT-3D TEE, especially for those in mitral position.4–6 It is understood that cine fluoroscopy is effective at detecting abnormality of leaflet mobility, and TTE may provide data regarding changes in valve area and transvalvular gradients. Nevertheless, these imaging tools are complementary to TEE, which offers a fundamental roadmap for TT in patients with PVT. Third, patients with thrombus with size >1 cm² were included in the trial. It is surprising why these patients were not given TT and were excluded from the trial. It is noteworthy that the recent 2017 American Heart Association (AHA)/American College Cardiology (ACC) focused update of the 2014 AHA/ACC guideline for the management of patients with valvular heart disease now recommends urgent initial treatment with either slow-infusion low-dose fibrinolytic therapy or emergency surgery for obstructive PVT as first-line treatment strategies with class 1B indication.7

In conclusion, during TT in patients with PVT, continuous TEE guidance is crucial. Moreover, RT-3D TEE is a complementary imaging tool to 2D TEE in the diagnosis and evaluation of PVT. Finally, if TEE had been performed on all the patients in the study both before and after TT, the unexpected results would not have been the same.

Conflict of interest

The authors declare that they have no conflict of interest.

References


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Authors' response to “Letter to Editor”

We thank the authors of the letter for their interest in our work and for making valid observations. Please find below our responses.
Biological stability of tenecteplase during continuous infusion.

There are not many studies on the use of tenecteplase (TNK) in the management of prosthetic valve thrombosis (PVT), and we do not have clear guidelines for the same. Few earlier case reports have documented the use of continuous infusion of TNK in PVT and peripheral arterial thrombosis. Total dose of 0.5 mg/kg of TNK was used as a continuous infusion in cases of PVT, whereas in acute limb ischemia, 0.25–0.5 mg/h of TNK was used with a mean infusion time of 7.5 h (range, 3–20 h). The mode of administration and optimal dose of TNK in the management of PVT are still evolving. As per the manufacturer's guidelines, the shelf life of reconstituted solution (maintaining physical and chemical stability) is at least 8 h when maintained at a temperature less than 30 °C and 24 h when maintained below 8 °C. The previously cited studies have documented efficacy of TNK infusions continued over durations longer than 8 h. We also observed the clinical efficacy of TNK in reducing the gradients and improving the clinical status after 8 h of infusion in 7 of our patients.

We would also like to emphasize that unlike acute myocardial infarction, where the time is muscle and lytic therapy has to be administered as fast as possible, with PVT, there is a longer thrombolytic window. Moreover, we felt that the larger burden of thrombus with PVT necessitated a slower infusion over a longer period.

Use of transesophageal echocardiography and real-time three-dimensional transesophageal echocardiography in diagnosing PVT

Although transesophageal echocardiography (TEE) seems to be ideal, we could obtain reasonably good images with transthoracic echocardiography (TTE) in most of our patients. We used TEE and fluoroscopy as an additional tool whenever TTE images were deemed to be inadequate.

We also agree that real-time three-dimensional (RT-3D) TEE can improve diagnosis of PVT. However, with the appropriate clinical picture, the use of TTE, and whenever needed TEE and fluoroscopy, the diagnosis of PVT could me made with certainty in all our cases.

Patients with thrombus size >1 cm² were excluded from this study

We had started this study in 2014, when the recommendation for PVT with thrombus size >0.8 cm² was emergency surgery (class IIa indication). Hence, the patients with thrombus size more than 10 mm² were not included in this study that aimed to evaluate the role of thrombolytic therapy in PVT.

However, we wish to inform the readers that this study was a part of the ongoing Madras Medical College PVT registry. Subsequent to the publication of the 2017 American Heart Association (AHA)/American College of Cardiology (ACC) focused update of the 2014 AHA/ACC guideline for the management of patients with valvular heart disease, now the patients with thrombus size more than 10 mm² are also being considered for thrombolytic therapy at our center.

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Further reading


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