Reviewer’s report

Title: Case Presentation: Implantation of Cardiac Resynchronization Therapy Pacemaker via the Coronary Sinus in a Patient with Triple Valves Replacement

Version: 0 Date: 08 Nov 2017

Reviewer: Luca Donazzan

Reviewer’s report:

In the article entitled "Case presentation: Implantation of Cardiac Resynchronization Therapy Pacemaker via the Coronary Sinus in a Patient with Triple Valve Prosthesis" Dr. Zheng and colleagues report their single successful experience in implanting a cardiac resynchronization therapy pacemaker (CRT-P) in a patient with complete atrio-ventricular block and both mitral and tricuspid mechanical valve prosthesis.

Rheumatic heart disease is currently a rare, but severe heart disease. It mostly involves two or more heart valves in young patients therefore mechanical valve implantation is almost mandatory. Tricuspid valve involvement is quite common and since the AV node is closely related to the anterior superior tricuspid annulus post surgical complete atrio-ventricular block can occur. Epicardial leads are known to degenerate during follow-up, developing high pacing thresholds.

Infections and complications risk has not to be underestimated during permanent pacing device implantation. Risk factors for infections are: oral anticoagulation, number of implanted leads, diabetes, renal insufficiency, etc.

I have the following comments:

- the quality of written English is not suitable for publication and should be improved.

- Data about anticoagulation during the CRT-P implantation in this patient should be added.

- Authors report "It has been confirmed that a wide QRS complex in patients with heart failure reflecting left-sided intraventricular conduction delay is associated with worse LV function, poorer prognosis and a higher all-cause mortality rate compared with patients with a narrow QRS complex". Their 66 year-old female patients had a 65% ejection fraction and a moderate prosthetic tricuspid valve stenosis. Signs of right heart failure could be secondary to tricuspid valve stenosis more than to ventricular dyssynchrony. Moreover, to clarify if a dual ventricular lead implantation was necessary, it would be interesting to see the cardiac mechanics (tissue Doppler imaging, myocardial strain imaging, etc.) during single lead quadripolar pacing (as reported in several case reports) and using the vector from the proximal tip of the quadripolar lead to the coil of bipolar lead in MCV (vector P4-MCV, as described in the paper). Please provide this data and images/videos. Moreover, data on functional capacity (6 minute walking
test, cardiopulmonary exercise test) and laboratory tests (NT-proBNP) should also be provided to confirm the correct indication to dual lead instead of single lead implantation.

- Atrial rhythm is not reported. Is the device in VVI pacing mode (no atrial lead is visible in the chest radiography)? What about atrio-ventricular dyssynchrony as possible cause of heart failure? Please comment on that.

- Pacing thresholds of 1.75 V at 1.0 msec are not excellent and may cause early battery consumption. What about battery length in this patient? Please comment on that.

**Are the methods appropriate and well described?**
If not, please specify what is required in your comments to the authors.

No

**Does the work include the necessary controls?**
If not, please specify which controls are required in your comments to the authors.

Unable to assess

**Are the conclusions drawn adequately supported by the data shown?**
If not, please explain in your comments to the authors.

No

**Are you able to assess any statistics in the manuscript or would you recommend an additional statistical review?**
If an additional statistical review is recommended, please specify what aspects require further assessment in your comments to the editors.

Not relevant to this manuscript

**Quality of written English**
Please indicate the quality of language in the manuscript:

Not suitable for publication unless extensively edited

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