Since January 2020 Elsevier has created a COVID-19 resource centre with free information in English and Mandarin on the novel coronavirus COVID-19. The COVID-19 resource centre is hosted on Elsevier Connect, the company's public news and information website.

Cardiovascular Revascularization Medicine 26 (2021) 66–67

Contents lists available at ScienceDirect

Cardiovascular Revascularization Medicine

Transcatheter Aortic Valve Implantation During COVID-19 Pandemic: The Device Also Matters

Ariana González-García *, Santiago Jiménez-Valero, Alfonso Jurado-Román, Guillermo Galeote, Raúl Moreno

Unit of Interventional Cardiology, Hospital La Paz, IdiPAZ, CIBER-CV, Madrid, Spain

To the editor:

During Coronavirus Disease 2019 (COVID-19) pandemic, health systems were overwhelmed worldwide. Because of that, and also to reduce the risk of virus contamination, most elective invasive procedures were cancelled or postponed [1,2].

However, some patients pending on structural heart percutaneous interventions are also at high risk of cardiac events and even death if the procedure is postponed indefinitely, and may need to be treated even during pandemic. That is the case of trans-catheter aortic valve implantation (TAVI) [3], that is frequently indicated in patients with limited life expectancy if left untreated. Because of that, some recommendations about TAVI procedure during pandemic have been published [4–7], including those recently published by Khan and coworkers [8]. These documents have included recommendations related with patient selection, health care workers protection and also technical and procedural instructions in order to reduce hospital stay (i.e. minimalistic approach). However, no guidance has been proposed in relation with preferences related with the type of device to implant, and this is of importance because of the growing number of different devices available in the market [9].

Trans-catheter aortic valves differ in many aspects, but during COVID-19 pandemic the risk of severe conduction abnormalities and vascular complications highlight because both lead to subsequent procedures (permanent pacemaker implantation and percutaneous or surgical vascular repair) that not only may increase the risk of virus contamination but also prolong hospital stay. In a recent study, both complications are among the most important factors leading to a prolonged hospital stay after TAVI [10]. Additionally, vascular and bleeding complications may explain ≈20% of deaths during hospitalization [11]. The Association of Interventional Cardiology from the Spanish Society of Cardiology (ACI-SEC) has included in their recommendations the importance of selecting a device with low rate of pacemaker implantation and low sheath, avoiding those needing >14 French sheaths [12]. The risk of severe conduction abnormalities is lower with the Acurate Neo (Boston Scientific) and balloon-expandable valves, in comparison with Corevalve (Medtronic Inc.), Portico (Abbott vascular) and Lotus (Boston Scientific) devices [13,14]. The risk of vascular complications is higher with larger sheaths. Although the rate of general complications is lower when operators use the device are more familiar with, device selection during COVID-19 pandemic should strongly consider these aspects.

References

[1] Romaguera R, Cruz-Gonzalez I, Jurado-Roman A, et al. Considerations on the invasive management of ischemic and structural heart disease during the COVID-19 coronavirus outbreak. Consensus statement of the Interventional Cardiology Association and the Ischemic Heart Disease and Acute Cardiac Care Association of the Spanish Society of Cardiology. REC Interv Cardiol. 2020;2:112–7.

[2] Rodríguez-Leor O, Cid-Álvarez B, Ojeda S, Martín-Moreiras J, Rumoroso JR, López-Palop R, et al. Impact of COVID-19 pandemic over activity of interventional cardiology in Spain. REC Interv Cardiol. 2020;2:82–9.

[3] Ojeda S, Jimenez-Quevedo P, Romaguera R, Cruz-González I, Moreno R, et al. Impact of the COVID-19 pandemic on transcatheter aortic valve implantation in Spain. Rev Esp Cardiol. 2020;2:310–2.

[4] Shah PB, Welt FPG, Mahmud E, Phillips A, Kleiman NS, Young MN, et al. Triage considerations for patients referred for structural heart disease intervention during the COVID-19 pandemic: an ACC/SCAI position statement. JACC Cardiovasc Interv. 2020; 13:1484–8.

[5] Khialani B, MacCarthy P. Transcatheter management of severe aortic stenosis during the COVID-19 pandemic. Heart. 2020;106:1183–90.

[6] Mentias A, Jneid H. Transcatheter aortic valve replacement in the coronavirus disease 2019 (COVID-19) era. J Am Heart Assoc. 2020:e017121.

[7] Lauck A, Forman J, Borregaard B, Sathananthan J, Achtem L, McCalmont G, et al. Facilitating transcatheter aortic valve implantation in the era of COVID-19: recommendations for programmes. Eur J Cardiovasc Nurs. 2020:537–44.

[8] Khan JM, Khalid N, Shlofmitz E, Forrestal BJ, Yerasi C, Case BC, et al. Guidelines for balancing priorities in structural heart disease during the COVID-19 pandemic. Cardiovasc Revasc Med. 2020:1030–3.

[9] Figulla HR, Franz M, Lauten A. The history of transcatheter aortic valve implantation (TAVI)-a personal view over 25 years of development. Cardiovasc Revasc Med. 2020;21:398–403.

[10] Moreno R, Calvo L, Salinas P, Dobarro D, Santiago JV, Sanchez-Recalde A, et al. Causes of peri-operative mortality after transcatheter aortic valve implantation: a pooled analysis of 12 studies and 1223 patients. J Invasive Cardiol. 2011;23:180–4.

[11] Okoh AK, Haik N, Haik B, Gold J, Chen C, Lee LY, et al. Periprocedural complications after transcatheter aortic valve replacement and their impact on resource utilization. Cardiovasc Revasc Med. 2020:1086–90.

[12] Moreno R, Ojeda S, Romaguera R, Jiménez-Quevedo P, Cruz-González I. Transcatheter aortic valve implantation during the current COVID-19 pandemic. Recommendations from the ACI-SEC. REC: Interv Cardiol. 2020;2:230–1.

* Corresponding author at: Unit of Interventional Cardiology, Hospital La Paz, IdiPAZ, CIBER-CV, Paseo La Castellana, 261, 28046 Madrid, Spain.
E-mail address: arianagonzalvez@gmail.com (R. Moreno).

https://doi.org/10.1016/j.carrev.2020.08.044

[13] Mauri V, Frohn T, Deuschl F, Mohemed F, Kuhr K, Reimann A, et al. Impact of device landing zone calcification patterns on paravalvular regurgitation after transcatheter aortic valve replacement with different next-generation devices. Open Heart. 2020; 7:e001164.

[14] Makkar RR, Cheng W, Waksman R, Satler LF, Chakravarty T, Groh M, et al. Self-expanding intra-annular versus commercially available transcatheter heart valves in high and extreme risk patients with severe aortic stenosis (PORTICO IDE): a randomised, controlled, non-inferiority trial. Lancet. 2020;396:669–83.