2. Romaguera R, Ribera A, Güell-Viaplana F, et al. Reducción de los ingresos por infarto agudo de miocardio con elevación del segmento ST en Cataluña durante la pandemia de COVID-19. *Rev Esp Cardiol.* 2020;73:778–780.
3. García S, Albaghdadi MS, Meraj PM, et al. Reduction in ST-segment elevation cardiac catheterization laboratory activations in the United States during COVID-19 pandemic. *J Am Coll Cardiol.* 2020;75:2871–2872.
4. Gadella A, Sastre MA, Maicas C, Rodríguez-Padial L, Arias MA. Infarto agudo de miocardio con elevación del segmento ST en tiempos de COVID-19: ¿regreso al siglo pasado? *Una llamada de atención Rev Esp Cardiol.* 2020;73:582–583.
5. Pintilie M. Análisis de riesgos competitivos. *Rev Esp Cardiol.* 2011;64:599–605.
6. Katz MH. *Multivariable analysis. A practical guide for clinicians.* Cambridge: Cambridge University Press; 1999:75.

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Competing risk largely explains the drop in admissions for acute cardiovascular disease during the COVID-19 pandemic. Response

El riesgo competitivo puede explicar en gran medida la disminución de los ingresos por enfermedad cardiovascular aguda durante la pandemia de COVID-19. Respuesta

To the Editor,

The existence of competing risks is also one of our main hypotheses to explain the reduction in admissions for acute cardiovascular disease during the COVID-19 pandemic.[1] The excess mortality from all causes of more than 50% that occurred in Catalonia (11 568 deaths), especially in patients older than 74 years (9749),[2] would also explain the slight decrease in the average age of patients seen.[3]

The AMI code registry also showed, in March, a slight (not significant) increase in complications indicative of delays to care: cardiogenic shock, ventricular fibrillation, and acute phase mortality. However, we do not have solid data that allow us to verify these hypotheses. In fact, the excess mortality by cause for Spain is not yet known. In the USA, more than a third of the excess was due to causes other than COVID-19, and the cardiac mortality practically doubled.[4] Accepting the limitations of extrapolating these figures to our setting, we could postulate that, of the 43 938 excess deaths in Spain,[2] approximately 15 000 would be from causes other than COVID-19, and many of these from cardiac causes. In this case, not only would there be a competing risk with death from COVID-19, but also with cardiac death caused by the secondary effect of the pandemic on access to health care.

Therefore, although the proportion attributable to each factor is unknown, it seems that they would all have a substantial relative weight, and some—such as fear of attending hospital—could be prevented with simple information campaigns.

In addition, it would be expected that such a large reduction in non–COVID-19 care[5] would have a substantial impact on health in the mid- term and on organization of patient care for those with cardiovascular disease.

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The pandemic certainly provides us with an enormous in vivo experiment, as well as some challenges: interpreting the partial and often biased view of reality that the data affords us and reusing these data in an attempt to improve patient care for those with cardiovascular disease in this new situation.

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REFERENCES

1. Rodríguez-Padial L, Arias MA. El riesgo competitivo puede explicar en gran medida la disminución de los ingresos por enfermedad cardiovascular aguda durante la pandemia de COVID-19. *Rev Esp Cardiol.* 2020. http://doi.org/10.1016/j.recesp.2020.07.022
2. Sistema de Monitorización de la Mortalidad diaria (MoMo) en España. Available at: https://momo.isciii.es/public/momo/dashboard/momo_dashboard.html. Accessed 20 Aug 2020.
3. Romaguera R, Ribera A, Güell-Viaplana F, et al. Reducción de los ingresos por infarto agudo de miocardio con elevación del segmento ST en Cataluña durante la pandemia de COVID-19. *Rev Esp Cardiol.* 2020;73:778–780.
4. Woolf SH, Chapman DA, Sabo RT, Weinberger DM, Hill L. Excess deaths from COVID-19 and other causes March-April 2020. *JAMA.* 2020. http://doi.org/10.1001/jama.2020.11787
5. Rodríguez-Leor O, Cid-Álvarez B, Ojeda S, et al. Impacto de la pandemia de COVID-19 sobre la actividad asistencial en cardiología intervencionista en España. *REC Interv Cardiol.* 2020;2:82–89.

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Simultaneous percutaneous repair in mitral and tricuspid regurgitation: step by step

Reparación percutánea simultánea en la insuficiencia mitral y tricuspídea: paso a paso

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To the Editor,

We read with interest the recently-published scientific letter by Caneiro-Queija et al.,[1] in which they showed the possibility of combined treatment of mitral regurgitation (MR) and tricuspid regurgitation (TR) in a single procedure using MitraClip devices. It does indeed demonstrate the high levels at which operators and structural intervention are currently working, but we would like to raise some points regarding the indication for performing the 2 repairs in a single procedure.

First, while it is quite normal in surgical procedures to repair several valves in a single operation, in interventional cardiology this aspect may generate some controversy. Longer duration of the procedure is associated with an increased risk of complications associated with vascular access,[2] the need for a longer anesthetic,[3] increased use of ionizing radiation, and more transesophageal ultrasound time.[4]

Second, with currently-available medical treatment, the short-term mortality from TR, even in its most severe forms, is low, especially in patients who maintain good functional status.[5]

Third, the 2 valvulopathies are closely dependent. It has been demonstrated that correction of MR, independently of the technique, significantly reduces left ventricular filling pressures and pulmonary hypertension.[6] In the case of the MitraClip, between a third and a half of patients have a significant reduction in TR grade following MR repair.[7,8] It is therefore more than reasonable to wait and see the results before planning a second procedure, especially in cases with little dilatation of the tricuspid annulus and a structurally normal valve.

Fourth, the use of several devices in a single procedure implies a higher financial burden, which means rigorous selection of appropriate candidates is essential, especially since a high percentage of cases of TR improve after MR repair.

Last, there is little experience of the benefit of performing both repair procedures in combination. Only one study has indicated that a certain survival benefit could be obtained, but there were many limitations to its design, and it compared mitral repair alone against simultaneous repair of both valves, but not against staged repair.[9]

The percutaneous repair of TR represents a major advance and hope, particularly for patients who are not candidates for surgery.[10–14] Although nobody would question combined repair in a surgical procedure, in percutaneous procedures this is more controversial. A randomized study is needed to compare simultaneous repair of both valves against a staged approach based on the results on TR.

CONFLICTS OF INTEREST

Á. Sánchez-Recalde is associate editor of *Revista Española de Cardiología;* the journal's established editorial procedure to ensure impartial management of the manuscript has been followed.

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BIBLIOGRAFÍA

1. Caneiro-Queija B, Estévez-Loureiro R, Calvo-Iglesias F, Baz-Alonso JA, Abu-Assi E, Íñiguez-Romo A. Tratamiento percutáneo combinado de la insuficiencia mitral y tricuspídea con sistema MitraClip: primera experiencia en España. *Rev Esp Cardiol.* 2020. http://dx.doi.org/10.1016/j.recesp.2020.05.007.
2. Paganin AC, Beghetto MG, Feijo MK, et al. Complicaciones vasculares en pacientes sometidos a procedimientos cardiológicos endovasculares: cohorte multicéntrica. *Rev Latino-Am Enfermagem.* 2018;26:e3060.
3. Cheng H, Clymer JW, Po-Han B, et al. Prolonged operative duration is associated with complications: a systematic review and meta-analysis. *J Surg Res.* 2018;229:134–144.
4. Freitas-Ferraz A, Bernier M, Vaillancourt R, et al. Safety of transesophageal echocardiography to guide structural cardiac interventions. *J Am Coll Cardiol.* 2020;75:3164–3173.
5. Mahía P, Aguilar R, De Agustín JA, et al. Medida tridimensional del área del anillo tricúspide. Un nuevo criterio en la selección de candidatos a anuloplastia. *Rev Esp Cardiol.* 2019;72:732–739.
6. Barth S, Hautmann MB, Kerber S, et al. Hemodynamic improvement at three months after MitraClip® treatment in end-stage heart failure patients with functional mitral regurgitation. *J Heart Valve Dis.* 2016;25:475–482.
7. Frangieh AH, Gruner C, Mikulicic F, et al. Impact of percutaneous mitral valve repair using the Mitraclip system on tricuspid regurgitation. *EuroIntervention.* 2016;11:e1680–e1686.
8. Ohno Y, Attizani GF, Capodanno D, et al. Association of tricuspid regurgitation with clinical and echocardiographic outcomes after percutaneous mitral valve repair with the Mitraclip system: 30-day and 12-month follow-up from the GRASP Registry. *Eur Heart J Cardiovasc Imaging.* 2014;15:1246–1255.
9. Mehr M, Karam N, Taramasso M, et al. Combined tricuspid and mitral versus isolated mitral valve repair for severe MR and TR: an analysis from the TriValve and TRAMI Registries. *JACC Cardiovasc Interv.* 2020;3:543–550.
10. Sánchez-Recalde A, Hernández-Antolín R, Salido Tahoces L, García-Martín A, Fernández-Golfín C, Zamorano JL. Transcatheter tricuspid annuloplasty with the Cardioband device to treat severe functional tricuspid regurgitation. *Rev Esp Cardiol.* 2020;73:503–515.
11. Estévez-Loureiro R, Moñivas V, Arellano-Flores C, Forteza A, Martín C, Goicolea J. Reemplazo percutáneo de la válvula tricúspide con prótesis autoexpandible dedicada: sistema GATE. *Rev Esp Cardiol.* 2019;72:1081–1083.
12. Iñiguez-Romo A, Baz JA, Calvo-Iglesias FE, Encisa J, Abu-Assi E. Tratamiento percutáneo de la insuficiencia tricúspide mediante una endoprótesis valvulada. *Rev Esp Cardiol.* 2019;72:1083.
13. Li C-H, Millan X, Capellades H, Danduch L, Serra A, Arzamendi D. Multimodalidad y fusión de imágenes en el tratamiento percutáneo de la insuficiencia tricúspide. *Rev Esp Cardiol.* 2019;72:421–422.
14. Latib A, Curio J, Mangieri A. Más herramientas para una necesidad no cubierta: nuevas opciones para el tratamiento percutáneo de la insuficiencia tricuspídea. *Rev Esp Cardiol.* 2019;72:991–993.

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Simultaneous percutaneous repair in mitral and tricuspid regurgitation: step by step. Response

Reparación percutánea simultánea en la insuficiencia mitral y tricuspídea: paso a paso. Respuesta

To the Editor,

First of all, we would like to thank Sánchez Vega et al. for the interest shown in our recent article. The field of combined interventional cardiology for mitral and tricuspid regurgitation (TR) is in its early stages, and the scientific evidence is still not sufficiently strong. Therefore, it is only natural that questions arise about these complex procedures. Nonetheless, some arguments support combined repair in certain cases. The presence of severe TR at the time of mitral repair has been reported to be associated with poorer prognosis, even in the short-term.[1,2] Furthermore, although TR is theoretically significantly reduced after mitral repair, this outcome is seen in only 15% to 40% of patients.[3] Consequently, a number of patients could experience clinical deterioration due to residual TR. Factors such as annular dilatation, degree of TR, right-sided dysfunction and dilatation, or the presence of congestive symptoms may indicate that the TR will not improve and that there is a risk of adverse events during follow-up. Once the decision has been made to treat both valves, combined treatment appears to

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