

Perspectivas de los expertos

**Dra. Roberto M. Lang**

Director, Laboratorio de imágenes cardíacas no invasivas, Universidad de Chicago

Implicaciones cardíacas del COVID-19

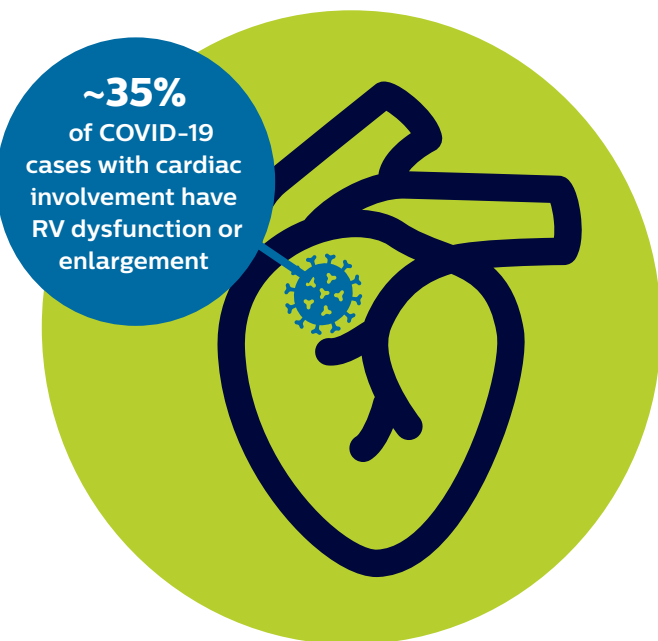
Dra. Roberto Lang, jefe del laboratorio de imagenología cardíaca no invasiva de la Universidad de Chicago, compartió su perspectiva acerca del impacto del COVID-19 sobre el corazón y la manera en que su laboratorio de ecocardiografía se ha adaptado rápidamente para brindar atención a estos pacientes complejos.

“Estamos aprendiendo cada vez más sobre la manera en que la presentación de un paciente influye en los resultados esperados”, menciona el doctor Lang. “Si bien el hemicardio izquierdo es la principal área de enfoque al evaluar a estos pacientes, abordar ambas cámaras es importante para el proceso de atención de los pacientes con COVID-19. Las herramientas automatizadas de análisis de deformación han simplificado la evaluación de la función ventricular derecha, lo cual es importante para la atención de dichos pacientes”.

Impact on the right side of the heart

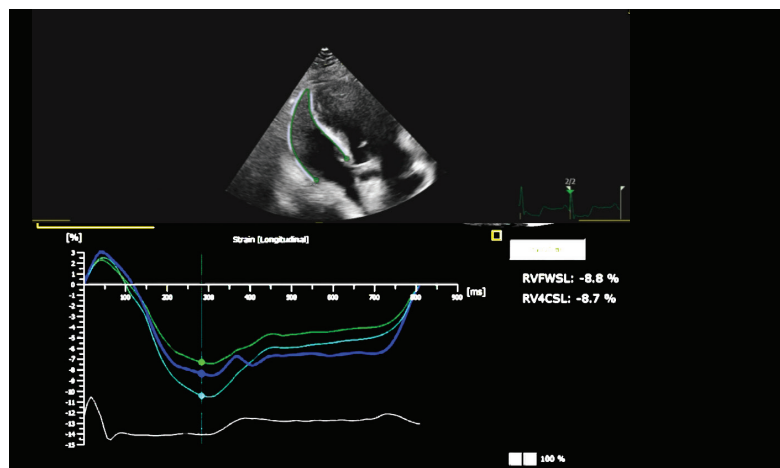
COVID-19 also has a unique impact on the right side of the heart. Dr. Lang has seen the right heart affected by enlargement or dysfunction in approximately 35% of patients, which is not completely unexpected given the impact of COVID-19 on the lungs.

RV imaging can depict the right ventricle to be enlarged and with reduced systolic performance. These morphological changes are seen as secondary to an increase in pulmonary vascular resistance, which may occur due to multiple causes such as hypoxia, pulmonary vasospasm, hypercapnia, inflammation, fluid overload, unsuitable mechanical ventilator settings and pulmonary embolus. It is not uncommon for these patients to have a history of smoking, asthma, COPD or sleep apnea.



Tips for assessing the RV

Generally speaking, the RV systolic performance can be assessed using the tricuspid annular plane systolic excursion (TAPSE) and the DTI-derived tricuspid lateral annular systolic velocity (S'). Recently the use of strain imaging to assess RV function has been used as an alternative because of its advantages. RV strain imaging is simplified and reproducible using AutoStrain RV for right ventricular quantification.



Patient with COVID-19 with a dilated RV. The strain of the RV free wall is greatly reduced (-9%).

RV Summary

Dr. Lang notes that RV free wall strain can be measured reproducibly from RV-focused views using AutoStrain. Moreover, he proposes that RV strain should be assessed in every patient because TAPSE and S' measurements can be misleading and do not correlate well with MRI measurements in certain conditions. Dr. Lang cites published literature that associates RV dysfunction, as measured by RV free-wall strain, with increased morbidity and mortality in COVID-19.^{1,2} A recent study highlighted that mortality of COVID-19 patients has been directly correlated to the degree of abnormality in RV free-wall strain.³

See the video on COVID-19 and the right heart

<https://www.youtube.com/watch?v=JBJEolc33ZY&t=47s>

References

1. Szekely Y, Lichter Y, Taieb P, et al. Spectrum of cardiac manifestations in COVID-19: a systematic echocardiographic study. *Circulation*. 2020;142(4):342-353. DOI:10.1161/CIRCULATIONAHA.120.047971
2. Argulian E, Sud K, Vogel B, et al. Right ventricular dilation in hospitalized patients with COVID-19 infection. *J Am Coll Cardiol Img*. 2020 Jul 15. DOI:10.1016/j.jcmg.2020.05.010
3. Li Y, Li H, Zhu S, et al. Prognostic value of right ventricular longitudinal strain in patients with COVID-19. *J Am Coll Cardiol Img*. 2020 Jul 29. DOI:10.1016/j.jcmg.2020.04.014

Results from case studies are not predictive of results in other cases. Results in other cases may vary.

© 2020 Koninklijke Philips N.V. All rights are reserved. Philips reserves the right to make changes in specifications and/or to discontinue any product at any time without notice or obligation and will not be liable for any consequences resulting from the use of this publication. Trademarks are the property of Koninklijke Philips N.V. or their respective owners.



[philips.com](https://www.philips.com)

4522 991 65431 * DEC 2020