Book review

Ecocardiografía tridimensional

Edited by Ricardo Ronderos. Ediciones Journal, Argentina; 2016: 401 pages, 22 tables, 1282 figures and 197 videos (online access). ISBN: 978-987-1981-83-0.

Three-dimensional echocardiography has succeeded in revolutionizing the world of cardiac imaging, and is a reality in routine clinical practice. We have left behind the face-off between 2D and 3D to introduce all the advantages of 3D into our daily work, recognizing that each of these techniques supports and complements the other, although the fact is that the use of 3D continues to be limited by the reduced availability of the technology. Three-dimensional echocardiography is currently considered to be essential in monitoring noncoronary interventional procedures, valve surgery, and congenital heart disease, as well as in the study of left and right ventricular function. Technological advances have greatly simplified image processing, which, at the present time, is only necessary when quantitative measurements are required. The current 3D image enables an accurate and reproducible anatomical evaluation in real-time, with no need for reconstruction following its acquisition.

One of the major challenges yet to be resolved is to convince users of its simplicity and utility in imaging laboratories. In this respect, Dr. Ricardo Ronderos' book has found a simple way to bring together the technical aspects and the clinical applications of 3-dimensional imaging. The book is divided into 32 chapters written by authors who are very prominent in the world of cardiac imaging. In formal aspects, it is a hardcover book offering high-quality edition of both the text and images. The chapters are brief and the text relies in a very practical way on images, figures, and videos that facilitate the understanding of even the most abstract aspects.

The first 6 chapters focus on the history and evolution of 3-dimensional technology, the advances that have enabled its present level of development and the image acquisition, processing, and quantification techniques that are indispensable for the understanding of the remaining concepts. Chapters 7, 8, 10, and 11 are devoted to the step-by-step quantification of left and right ventricular function. Perhaps the book would gain from the reordering of some of the chapters; for example, all the aortic and mitral valve diseases could be concentrated within the same block to avoid the repetition of concepts. Throughout the book, we find chapters that are especially practical as they summarize aspects that, until now, were not so well known, such as the normal aortic valve (chapter 13), diseases of the thoracic aorta (chapter 20), or the accurate quantification of mitral regurgitation (chapter 16). We would have liked to find a more comprehensive view of the utility of 3D images in endocarditis and heart surgery or its use in congenital heart disease. These gaps are made up for in the final chapters (26-30) with the thorough description of its usefulness in the catheterization laboratory. The book also advocates the use of new techniques, such as 3-dimensional image fusion in the catheterization laboratory (chapter 29) and its application in research (chapter 31).

The last chapter summarizes the applications of 3-dimensional echocardiography from the point of view of cardiologists who are not imaging experts. The overall message is positive for 3D, but is limited to aspects such as ventricular function or noncoronary interventions. Given that cardiac images are an essential element in today's cardiovascular semiology, as cardiologists and users of these techniques, we must insist on showing clinicians that the utility of 3D imaging is not restricted to 2 or 3 scenarios, but forms part of a complete echocardiographic examination. In this respect, the added value of this book is the access to digital content. Each chapter includes videos of 3-dimensional images with comments by Dr. Ronderos, 197 in all. These examples enable those who are not experts in imaging to understand the clinical utility of 3D echocardiography, while they also resolve the doubts that cardiologists in training may have about acquisition and quantification of 3-dimensional imaging.

In conclusion, it is a very interesting book that reviews all the aspects of 3-dimensional echocardiography included in the title: "How to understand it / how to use it / how to carry it out", in different clinical scenarios. Undoubtedly, it could serve as a reference book for cardiologists who want to achieve skill in, and a deeper knowledge of, this technique, as well as for clinical cardiologists, interventional cardiologists or cardiac surgeons who need a guidebook to help to optimize the implementation of 3-dimensional echocardiography in their day-to-day activities.

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