Canadian Journal of Cardiology 35 (2019) 941.e3–941.e4 www.onlinecjc.ca

Letters to the Editor

An Athlete's Journey Through Cardiovascular Screening: Applying a Nonbinary Approach to Sports Participation/Restriction Using Shared Decision-Making

To the Editor:

Recent data suggest that the prevalence of conditions associated with sudden cardiac death in Canadian athletes is 0.52%.[1] In an effort to standardize cardiovascular athletic screening, Canada's first recommendations have been established, emphasizing the nonbinary shared decision-making approach to decisions surrounding management and sports participation of at-risk athletes.[2] Our institution, Queen's University, recently translated these recommendations into practice,[3] during which a high-risk athlete was encountered through our screening program who otherwise would not have been detected.

Before varsity sports participation, an 18-year-old male rower was required to complete a medical history questionnaire, as well as receive a physical exam and electrocardiogram (ECG) from his family physician or the institution, if the request could not be fulfilled. These screening components were received by an athletic therapist, who conducted a first-pass flagging procedure using a binary approach (normal/abnormal). In this case, the finalized ECG reported a ventricular pre-excitation pattern, whereas the questionnaire and physical exam were both unremarkable. A follow-up appointment with an emergency physician (EMP) confirmed the ECG abnormality and referred the athlete to our sports cardiology clinic. In clinic, the athlete recalled episodic palpitations, one of which occurred during exercise, leading to the diagnosis of Wolff-Parkinson-White syndrome. The ECG abnormality, as well as the controversy surrounding the usefulness and concerns of ECG screening,[4] was discussed with the athlete and his parents by the coaching staff, EMP, cardiologist, and an electrophysiologist. Herein, the shared decision toward partial restriction (continue training at submaximal levels, but not compete) was made, with potential risks explained and discussion clearly documented. To define risk, a stress test was performed, showing gradual disappearance of pre-excitation at around 165 beats per minute. An electrophysiology study was ordered, which indicated a short anterograde refractory period

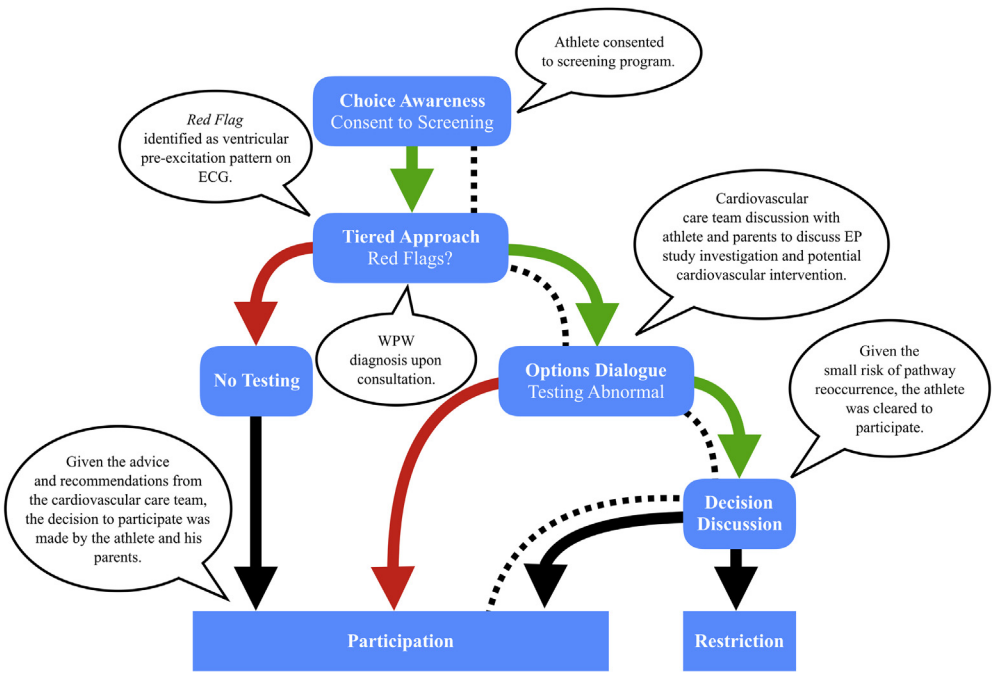

Figure 1. The shared decision-making approach for identification, intervention, and management of an ECG abnormality. A shared decision-making approach involving a choice awareness, tiered approach to screening, options dialogue, and decision discussion to determine sports participation or restriction was used. **Green arrows** indicate "yes." **Red arrows** indicate "no." **Dotted connection lines** indicate the pathway to sports participation/clearance taken during management of this case. ECG, electrocardiogram; EP, electrophysiology; WPW, Wolff-Parkinson-White syndrome.

https://doi.org/10.1016/j.cjca.2019.04.013

of the pathway; a potentially dangerous condition that could lead to malignant ventricular arrhythmias. The accessory pathway was located laterally on the mitral valve ring, and with appropriate consent obtained, was successfully ablated with no complications. The athlete was cleared to ease into competition with follow-up at 1 month (no restriction). A strong communication link between all care team members provided an extensive discussion regarding this abnormality, interventional options, and its potential effect on participation. Overall, the shared decision-making approach (Fig. 1) contextualizes screening and management for all involved, ensuring an informed decision is made with respect to partial or full restriction. Further case details are shown in the Supplementary Material.

Nicholas Grubic, BScH
Adrian Baranchuk, MD, FACC, FRCPC, FCCS
Amer M. Johri, MD, MSc, FRCPC, FASE
amerschedule@gmail.com

Disclosures

The authors have no conflicts of interest to disclose.

References

1. McKinney J, Lithwick DJ, Morrison BN, et al. Detecting underlying cardiovascular disease in young competitive athletes. Can J Cardiol 2017;33:155-61.

2. Johri AM, Poirier P, Dorian P, et al. Canadian Cardiovascular Society/Canadian Heart Rhythm Society joint position statement on the cardiovascular screening of competitive athletes. Can J Cardiol 2018;35:1-11.

3. Johri AM, Grubic N, Kuljic N, et al. Translation of the Canadian Cardiovascular Society/Canadian Heart Rhythm Society Cardiovascular Screening and Care of Athletes Program into practice. Can J Cardiol 2019;35:935-9.

4. Poirier P, Sharma S, Pipe A. The Atlantic Rift: guidelines for athletic screening-where should Canada stand? Can J Cardiol 2016;32:400-6.

Supplementary Material

To access the supplementary material accompanying this article, visit the online version of the *Canadian Journal of Cardiology* at www.onlinecjc.ca and at https://doi.org/10.1016/j.cjca.2019.04.013.