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Research Paper

Physicians approach shared decision-making for sports eligibility decisions heterogeneously

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ABSTRACT

Background: There is limited data regarding how clinicians operationalize shared decision-making (SDM) with athletes with cardiovascular diagnoses. This study was designed to explore sports cardiologists' conceptions of SDM and approaches to sports eligibility decisions.
Methods: 20 sports cardiologists were interviewed by telephone or video conference from October 2022 to May 2023. Qualitative descriptive analysis was conducted with the transcripts.
Results: All participants endorsed SDM for eligibility decisions, however, SDM was defined and operationalized heterogeneously. Only 6 participants specifically referenced eliciting patient preferences during SDM. Participants described variable roles for the physician in SDM and variable views on athletes' understanding, perception, and tolerance of risk. Participants thresholds for prohibitive annual risk of sudden cardiac death ranged from <1 % to >10 %.
Conclusions: These findings reinforce the general acceptance of SDM for sports eligibility decisions and highlight the need to better understand this process and identify the most effective approach for operationalization.

1. Introduction

Sports eligibility decisions for athletes with cardiovascular (CV) abnormalities have shifted away from a paternalistic paradigm to a more patient-centered approach involving shared decision-making (SDM) [1]. One reason for this shift is recognition of the ethical imperative to include patient perspectives in weighing risks and benefits when determining care [2]. A second reason is the emergence of data demonstrating more favorable outcomes for sports participation than was previously believed for certain groups, including patients with Long QT syndrome [3], implantable cardioverter-defibrillators [4], and hypertrophic cardiomyopathy [5]. Despite increasing emphasis on SDM, little is known about how sports cardiologists view or operationalize SDM in practice [6].

Recent findings suggest many athletes are unsatisfied with the process of sports eligibility decision-making in the context of CV disease [7]. Understanding how physicians approach SDM with athletes is critical in order to identify best practices for executing this process in the context of CV disease. We conducted an interview study to explore sports cardiologists' views on SDM and processes for conducting SDM among athletes with cardiovascular disease.

2. Methods

2.1. Study design

We conducted semi-structured interviews via telephone or video conference with self-identified sports cardiologists who consented to participate. The study was approved by the Emory University Institutional Review Board.

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2.2. Setting and participants

A random sample was drawn from the American College of Cardiology (ACC) Sports and Exercise Cardiology Section membership. Consistent with the study's qualitative aims, purposive sampling was then used to ensure geographic and gender representation.

2.3. Interview guide

A structured interview guide containing both open- and closed-ended questions with interactive probes was developed by investigators. Major domains included: conceptions of SDM, approaches to SDM, perceptions of athletes' views on risk, and thresholds of reasonable risk for continued participation (Supplement 1).

2.4. Data management and analysis

Interviews were audio recorded and transcribed. Transcripts were corrected for errors and analyzed using the MAXQDA software package. The primary analytic aim was qualitative description of key domains [8]. The preliminary codebook was developed a priori based on interview domains and refined inductively as themes emerged. Transcripts were coded by S.M.; coding was reviewed by N.D., C.B., and J.K. Coding discrepancies were resolved by consensus.

3. Results

3.1. Participant characteristics

99 self-identified sports cardiologists were contacted; 20 completed the interview, 1 declined, and 78 did not respond (Response Rate = 20 %). Mean age was 50 years (SD = 12), 25 % of participants were female, 65 % were affiliated with a college or professional sports team, and 80 % had an academic affiliation (Table I).

3.2. Physician conceptions of SDM

3.2.1. Defining SDM

All 20 participants endorsed SDM as important for determining sports eligibility for athletes with CV risk. Seventeen fully endorsed SDM, while 3 participants said SDM was appropriate in some or most eligibility decisions. When participants were asked to define SDM in clinical practice, however, descriptions varied substantially. Some participants described SDM as a collective decision-making process between the patient, clinician, and other stakeholders. Others defined SDM as communication among different clinicians, rather than with patients (Table II).

Table I
Sample characteristics.

Characteristics	Overall n (%)
Sex	
Male	15 (75)
Female	5 (25)
Geographic Region	
North	5 (25)
South	4 (20)
Midwest	5 (25)
West	6 (30)
Academic Affiliation	
Yes	16 (80)
VA/government affiliation	*2 (13)*
No	4 (20)
Current Affiliation with Professional/College Team	
Yes	13 (65)
No	7 (35)
Years in Practice (Since Cardiovascular Disease Fellowship)	
0–5	6 (30)
6–15	4 (20)
16–30	5 (25)
30+	5 (25)
Born	
1940s	1 (5)
1950s	3 (15)
1960s	2 (10)
1970s	6 (30)
1980s	8 (40)

3.2.2. Approaches to SDM

Views of the clinician's role in SDM reflected recognized conceptions of the physician-patient relationship: informative, interpretive, and deliberative [9]. Those who described an informative role emphasized patient autonomy and the physician's role as a provider of information and clinical expertise. Others described the provider as interpretive, emphasizing working with patients to elucidate patient preferences and factor preferences into the care plan. Participants who described a deliberative model emphasized making recommendations and working with patients to arrive at mutually agreeable plans (Table II). In addition to variation reflecting these general approaches, there was heterogeneity in how participants described communicating risk. There was support for and opposition to describing risk with precise numbers (i.e., percentages and risk ratios) and for relating risk to other activities (i.e., comparing CV risk to non-CV events).

3.3. Specific considerations in the athlete population

3.3.1. Patient preferences

Only 6 participants specifically referenced values elicitation as a part of the SDM process (Table II), though many made general claims about listening to patients.

3.3.2. Athletes' views on risk

We specifically assessed physician's views on three aspects of patient risk interpretation: athletes' understanding of risk, perception of risk, and tolerance for risk. Understanding of risk reflects a person's ability to grasp the risk information provided to them. Risk perception is a person's qualitative assessment of how likely and/or serious a risk is. Risk tolerance describes a person's willingness to take on risk.

Most participants described athletes' abilities to understand risk as similar to non-athletes, noting that understanding varies and can depend on age and health literacy. A few participants claimed athletes understand risk better than non-athletes. In their view, athletes are more concerned with health and have a greater average health literacy than non-athletes (Table II). Several participants initially claimed athletes understood risk less well than most people; however, these comments focused more on risk perception than understanding.

Participants held variable views on athletes' risk perception (Table II). Some noted athletes were particularly susceptible to risk minimization caused by feelings of invincibility and a drive to defy the odds that they viewed as intrinsic to competitive sports participation. Some also noted that heightened risk minimization could stem from athletes' beliefs that engaging in health promoting behaviors, namely physical activity, means that they "should not" be sick. Other participants viewed athletes as similarly likely to minimize risk as the general population, emphasizing that risk is difficult for any asymptomatic patient to conceptualize.

Participants sometimes viewed athletes as more risk tolerant than non-athletes, claiming athletes were accustomed to sports-related risks. Others described athletes' risk tolerance as comparable non-athletes'. These participants said that risk tolerance reflected valuation of athletics and that athletes, like others, are willing to tolerate risks associated with things they value (Table II).

Table II
Quote table.

Domain	Themes	Quotes
SDM definition	Shared with patients	"Shared decision-making is a process of just coming to a clinical recommendation for a patient that involves not just the physician giving instructions, but also the preferences of the patient, educating the patients, other stakeholders"
	Shared between clinicians	"It's a combination discussion with EPs, MRI specialists and then our heart failure specialist, our echo specialist. We all meet together on some of these patients…[and] set a course of therapy."
	Necessitates clinical uncertainty	"Shared decision-making is when a physician and a patient are engaged in a discussion about a grey area in medicine where the risk is uncertain and the patient's behavior may affect the risk."
Physician's role in SDM	Informative	"I go over the risks with them, but ultimately, they have to make the decision… they don't have the clinical background, so you give 'em all the information that you can collect."
	Interpretive	"If I get a handle on…how important the sport is to them…and why do they need to keep on playing…it may be that, 'Well, yeah, I've been runner my whole life, but I'd be okay in maybe not doing it as intensely…or doing a different kind of activity… It's just that I really like working out.' I've found that having that discussion will allow me to pivot them to a different activity a lot of times that might be safer for them instead of just continuing to do what they do because…they still wanted to work out."
	Deliberative	"…my responsibility lies in providing them with all the information…but also to provide some guidance so that we can come to a compromise or a decision together…"
Elicitation of preferences		"I always try to…get a good assessment of why they're playing what they're playing, how important it is to them to keep playing, and how much of an impact it might have on their life if they stopped playing."
Understanding of risk	Variable	"I think it's very variable. I've worked with athletes who, I think, have a very reasoned understanding of cardiac risks and athletes who have had a—for whom this has been a real challenge."
	Better than non-athletes	"Athletes are a different type of patient population where they're more in tune with their body…they wanna take care of their health. They're sort of like a '180' from the normal population of cardiology patients that we see…a lot of athletes are pretty easy to get through to."
Risk perception	Invincibility	"You have to have a certain level of disconnect with physical harm to really perform athletics…all their life [athletes have] taken it into that next level by breaking through everything that says, 'You shouldn't keep going'…Yes, it is tough for [athletes] to receive that information because of that air of invincibility…"
	View of athletics as protective against risk	"Sometimes, people who are extremely fit…it's hard for them to accept the fact that they may be very fit, but they may not be very healthy."
	Same as non-athletes	"Are they downplaying their disease? …I see that in non-athletes all the time. I see that in regular patients who say, 'No, Doc, I don't think there's anything wrong with me.'"
Risk tolerance	Accustomed to risk-taking	"…many athletes also are accustomed in some ways to living with risk. The hockey player, football player goes out…and every day is accepting he's running some risk of serious injury…I think in that regard, risk can have different meanings to people, both because of the way that they confront risk on a frequent basis and…if people make a risk-benefit calculation, the benefit of exercise might be greater in someone who is a professional, for instance."
	Importance of athletics	"If I had to tell a theater person that they couldn't do theater anymore, I imagine their response would be the same thing as if I told a varsity basketball player that you couldn't play anymore…I don't know that there's anything about [athletes] per se. I think it's just that this is…how they define themselves."

3.4. How much risk is too much risk?

To assess participants' tolerance for sports-related CV risk, we asked their views on a hypothetical eligibility scenario involving a college athlete with known risk for cardiac arrest. Participants' thresholds for prohibitive annual sudden cardiac death risk ranged substantially, from <1 % to >10 % (Fig. 1).

4. Discussion

Sports cardiologists broadly support using SDM to make sports eligibility decisions for athletes with CV diagnoses, but there is no clear consensus regarding what SDM means and how it should be

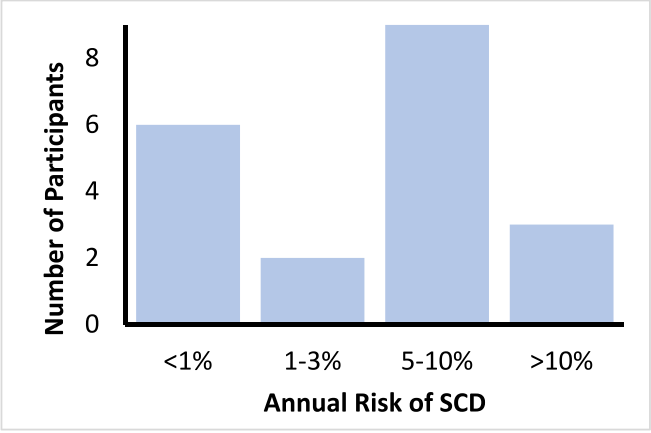

Fig. 1. Physicians' thresholds for prohibitive annual risk of sudden cardiac death during sports participation.

operationalized. Heterogeneity was present across central SDM domains including physician role, risk communication strategies, and views of athletes' understanding, perception, and tolerance of risk. Echoing recent reports that young competitive athletes have highly variable interactions with clinicians [7], these clinicians exhibited variations in risk tolerance. This heterogeneity is particularly significant considering that physicians in this study were self-identified sports cardiologists. Variability is likely more pronounced among practitioners with less focus and experience with these types of patient encounters. While the sample size was small and views of non-responders may conceivably differ from responders, the observed heterogeneity across multiple domains is noteworthy considering the high general level of SDM acceptance among the study population.

Perhaps most importantly, our findings revealed a relative underemphasis on the process of eliciting and understanding athletes' values and preferences. Because clinicians were not explicitly asked whether they elicit athlete values and preferences as part of their SDM process, it is difficult to know how often this does or does not happen in practice. However, the relative under-emphasis on value and preference elicitation suggests that a key component of SDM may not be prioritized and warrants further study as a target of potential interventions to advance SDM in this context.

These findings reinforce the acceptance of SDM with athletes who have cardiac risk. While a framework for the core elements of SDM for sports eligibility has been proposed [10], our data highlight the need for evidence regarding how to operationalize and integrate these components across practices. Operationalizing SDM in clinical medicine is broadly challenging, but approaches must be context-appropriate, and SDM for sports eligibility is unique in that it fundamentally hinges on risk/benefit analysis with incommensurable lifestyle and health trade-offs. Better understanding of this process could inform development and testing of tools to facilitate consistency in achieving the goals of SDM.

5. Conclusions

This study illustrates both sports cardiologists' support of and heterogeneous approaches to SDM for sports eligibility decisions for athletes with cardiovascular disease. More research is needed to clarify physicians' and patients' views on SDM for sports eligibility in order to develop and test approaches for operationalizing this complex process.

Supplementary data to this article can be found online at https://doi.org/10.1016/j.ahjo.2024.100371.

Compliance with ethical standards

All aspects of the study were approved by the Institutional Review Board of Emory University. Confidentiality safeguards were affirmed, and verbal consent was obtained prior to the start of the interview.

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CRediT authorship contribution statement

Sarah C. Montembeau: Conceptualization, Data curation, Formal analysis, Investigation, Writing – original draft, Writing – review & editing, Project administration, Visualization. **Jonathan H. Kim:** Conceptualization, Formal analysis, Validation, Writing – review & editing, Resources. **Christine M. Baugh:** Formal analysis, Validation, Writing – review & editing. **Eric G. Campbell:** Writing – review & editing. **Aaron L. Baggish:** Conceptualization, Writing – review & editing. **Neal W. Dickert:** Conceptualization, Formal analysis, Funding acquisition, Methodology, Project administration, Resources, Supervision, Validation, Writing – review & editing.

Declaration of competing interest

The authors declare the following financial interests/personal relationships which may be considered as potential competing interests: Dr. Dickert reports consulting and research funding from Abiomed, Inc. and research funding from NIH and AHRQ. Dr. Baggish receives compensation for his role as consultant / team cardiologist from the US Olympic Committee / US Olympic Training Centers, International Olympic Committee, National Football League Players Association, US Soccer, and US Rowing. Dr. Campbell has served as a paid expert witness on law cases related to financial conflicts of interest in medicine. The other authors report no conflicts.

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