Outcomes of Sports Participation for Patients with Hypertrophic Cardiomyopathy and Implantable Cardioverter-Defibrillators: Data from the ICD Sports Registry

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Background

Recent AHA/ACC consensus statement:
Competitive sports for an athlete with an ICD:
IIB recommendation "may be considered".

An important factor in decision-making for an athlete with an ICD considering return to play is the underlying cardiac condition.

The ICD Sports Registry showed no death, arrest, or failure to defibrillate during sports in the overall population, although many patients did receive shocks, appropriate and inappropriate, during sports and at other times.

Understanding characteristics and outcomes in disease-specific populations is critical to guide a specific patient in the decision-making process.

Objective: Describe characteristics and outcomes of patients with confirmed Hypertrophic Cardiomyopathy (HCM) in the ICD Sports Registry

Methods: ICD Sports Registry

Patient population: Age 10-60
Engaged in competitive or dangerous sports
Total N 440

Enrollment: Sites: 41 N American, 18 Outside US
Self-enrolled (about 50%): Information disseminated by patient advocacy organizations, partner HCMA

Data collection: Interview and medical record review

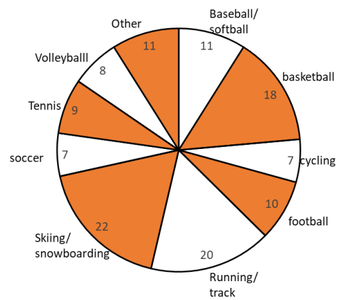
Follow-up: Patients contacted every 6 months,
Electrograms obtained for shocks received
Adjudicated by two electrophysiologists
Median follow up 44 months (iqr 30-48 months)

Patient Population

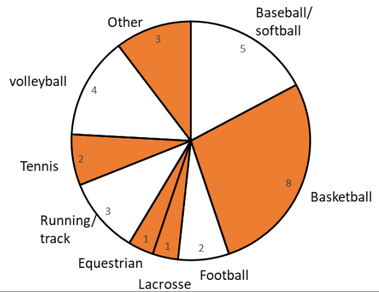
Demographic and Clinical Data N = 68	
Age < 20 (at enrollment)	26 (38%)
Interscholastic/traveling team	14 (21%)
Gender: female	18 (26%)
Race: white	62 (91%)
Indication	
Secondary prevention	18 (26%)
VF/arrest	10
Sustained VT	8
Primary prevention	50 (74%)
2 risk factors*	12
1 risk factor	32
0 risk factors	6
Septal wall thickness	1.9cm (1.5-2.4)
Ejection fraction	66% (60-69)
Time since ICD implant, months	22 (10.5-57)
ICD rate cut-off, bpm	207 (200-220)
Taking beta-blockers	33 (48%)

Values represent N (%) or median (IQR); *Class I indication risk factors: Septum >3.0cm, Nonsustained VT, syncope, Family history of sudden death

Sports participation: All athletes



Sports Participation: Varsity/traveling team athletes



References

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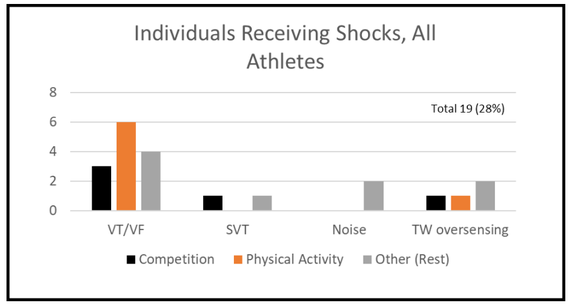
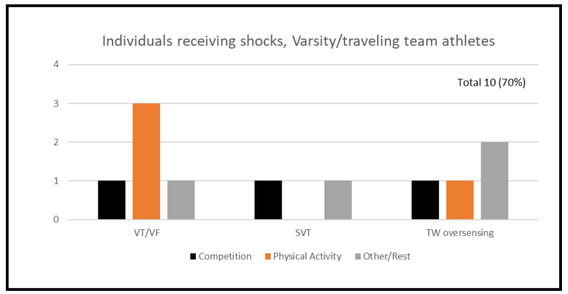
RESULTS

RESULTS: PRIMARY ENDPOINTS

- **Tachyarrhythmic death or externally resuscitated tachyarrhythmia during or after sports: 0**
- **Injury due to arrhythmia or shock during sports: 0**





All ventricular arrhythmias terminated with first shock except one episode which occurred in a teenager while at a party (at rest)

Conclusions

Among competitive athletes with HCM at risk for sudden death, ICD shocks during sports were relatively common but potentially lethal VT/VF was uncommon and was terminated with an initial shock. Shocks also occurred at other times including non-sports-related physical activity and at rest
These data help to inform decision-making for competitive sports participation in HCM patients with ICDs. Questions email rachel.lampert@yale.edu