How Hypertrophic Cardiomyopathy Became a Contemporary Treatable Genetic Disease With Low Mortality Shaped by 50 Years of Clinical Research and Practice

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Disclosures:
Medtronic (Grantee)
GeneDx (Consultant)
2° prevention
Cardiac arrest/sustained VT

1° prevention
Family history HCM-SD
Unexplained syncope
Multiple-repetitive NSVT (Holter)
Abnormal exercise BP response
LGE ≥ 15% of LV mass
Massive LVH ≥ 30 mm

Rare subgroups/potential arbitrators
End-stage (EF < 50%)
LV apical aneurysm
Marked LV outflow obstruction (rest)
Modifiable
  Intense competitive sports
  CAD
LGE ≥ 15% of LV mass
Age ≥ 60y
Alcohol septal ablation (?)
U.S./Canada: ACC/AHA: 2011

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Relation Between LV Thickness & SCD in 482 HCM Patients

% Patients With SCD

Max. LV Wall Thickness (mm)

<15  16-19  20-24  25-29  ≥30
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Aging is Good in HCM

Outcome of HCM Patients First Evaluated ≥ 60 Years

Maron BJ et. al. Circ 2013; 127: 585
Risk Stratification for Sudden Death in HCM

- Family history of sudden death
- Extreme LVH
- Nonsustained VT
- Unexplained syncope
- Abnormal BP response to exercise

No risk factors: 0.5%/year

- Low Risk
- Moderate
- High
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HCM Related Death or Adverse Clinical Events in 93 Patients with LV Apical Aneurysms

Log-rank test p<0.001

1.7%/year

8.1%/year

Survival free from HCM related mortality and adverse events

Years from First Evaluation

HCM patients without LV apical aneurysms
HCM patients with LV apical aneurysm

8.1%/year

Log-rank test p<0.001
Prevalence of LGE = 55-70%
Extent of LGE vs. Sudden Death Risk in HCM

Chan RH et al. Circ 2014; 130(6): 484-95
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HCM Cohorts:
1. Prior to utilization of current treatment strategies/interventions
2. Present HCM Cohort: Contemporary treatment

Early HCM Referral Cohorts

HCM-Related Mortality

General U.S. Population

ICD intervention
Heart transplant/myectomy
OHCA/defibrillation/hypothermia

0.8%/y

0.5%/y

1.5%/y

3-6%/y

% HCM Mortality
Profiles in Prognosis for HCM

- Sudden Death
  - ICD
- Progressive Heart Failure (obstructive)
  - Drugs
    - Septal Myectomy (Alcohol Ablation)
- Advanced Heart Failure & End Stage (non-obstructive)
  - Transplant
- AF & Stroke
  - Drugs
    - Anticoagulants Ablation
25-Year Contemporary Initiatives in Hypertrophic Cardiomyopathy

Genetic (molecular)
Single sarcomere mutation hypothesis

Lives Saved \rightarrow 0

Improved Quality of Life \rightarrow 0

“Clinicians”

Thousands

Many thousands