

Sessie 5 General cardiology and sports

Spreker 1:	Validation of the Academic Research Consortium for High Bleeding Risk (ARC-HBR) Criteria in Patients undergoing Transcatheter Aortic Valve Implantation <i>W.L. Bor (St. Antonius Ziekenhuis, Utrecht)</i>
Spreker 2:	The Sports Cardiology Team: Personalizing Athlete Care Through a Comprehensive, Multidisciplinary Approach J.C. van Hattum (Amsterdam UMC, location AMC, Amsterdam)
Spreker 3:	Emergency Medical Service Evaluations for Chest Pain during the COVID-19 Lockdown in Hollands-Midden, the Netherlands <i>E.R. de Koning (LUMC, Leiden)</i>
Spreker 4:	First Experience with Percutaneous Tricuspid Valve Repair in the Netherlands <i>F. Meijerink (Amsterdam UMC, locatie AMC, Amsterdam)</i>
Spreker 5:	Antibiotic Prophylaxis for Transfemoral Transcatheter Aortic Valve Implantation; a Nationwide Survey and Proposal for Uniform Prophylaxis <i>L. Veenis (Amsterdam UMC, Amsterdam)</i>
Spreker 6:	Hinge Point Fibrosis is a Common Finding in Asymptomatic Elite Male Water Polo Players <i>S.M. Verwijs (Amsterdam UMC, University of Amsterdam, Department of Cardiology, Amsterdam)</i>

Abstract sessies Online NVVC Najaarscongres
Donderdag 5 en vrijdag 6 november 2020

Validation of the Academic Research Consortium for High Bleeding Risk (ARC-HBR) Criteria in Patients undergoing Transcatheter Aortic Valve Implantation

Presenting author: W.L. Bor

Department: Cardiology

W.L. Bor (St. Antonius Ziekenhuis, Utrecht) D.R.P.P. Chan Pin Yin (St. Antonius Ziekenhuis, Utrecht); J. Brouwer; V.J. Nijenhuis (Maastricht University, Maastricht); J. Peper; J.M. ten Berg (St. Antonius Ziekenhuis, Utrecht)

Purpose:

Patients undergoing transcatheter aortic valve implantation (TAVI) are at high risk of bleeding. To date, no risk stratification tool exists for this population. We evaluated the feasibility of the Academic Research Consortium for High Bleeding Risk criteria (ARC-HBR, proposed for PCI patients) in TAVI patients.

Methods:

The ARC-HBR criteria were validated in the POPular TAVI cohort. Patients were assigned 2 points per major and 1 point per minor criterion. Event rates for minor, major, and life-threatening bleeding were compared between ARC-HBR defined low and high risk patients for different cut-offs.

Results:

Of the 978 patients in the cohort, 227(23.2%) had a bleeding event during 1 year follow-up after TAVI. The median ARC-HBR score was 3(interquartile range 2, range 0-9). Most frequent major criteria were use of oral anticoagulant(30.4%), malignancy(13.4%), major anaemia(13.1%), and severe chronic kidney disease(CKD, GFR <30mL/min, 6.5%). Most frequent minor criteria were age ≥75 year(83.5%), moderate CKD(GFR 30-59mL/min, 49.2%), minor anaemia(25.9%), and long-term use of NSAIDs or steroids(9.7%). A score of 6 or above classified 9.1% of the patients as high bleeding risk. These patients had more minor, major, or life-threatening bleeding events as compared to patients with score of below 6(22.3% vs. 32.6%, p=0.04), and a trend towards more major or life-threatening bleeding(9.3% vs. 15.7%, p=0.08).

Conclusion:

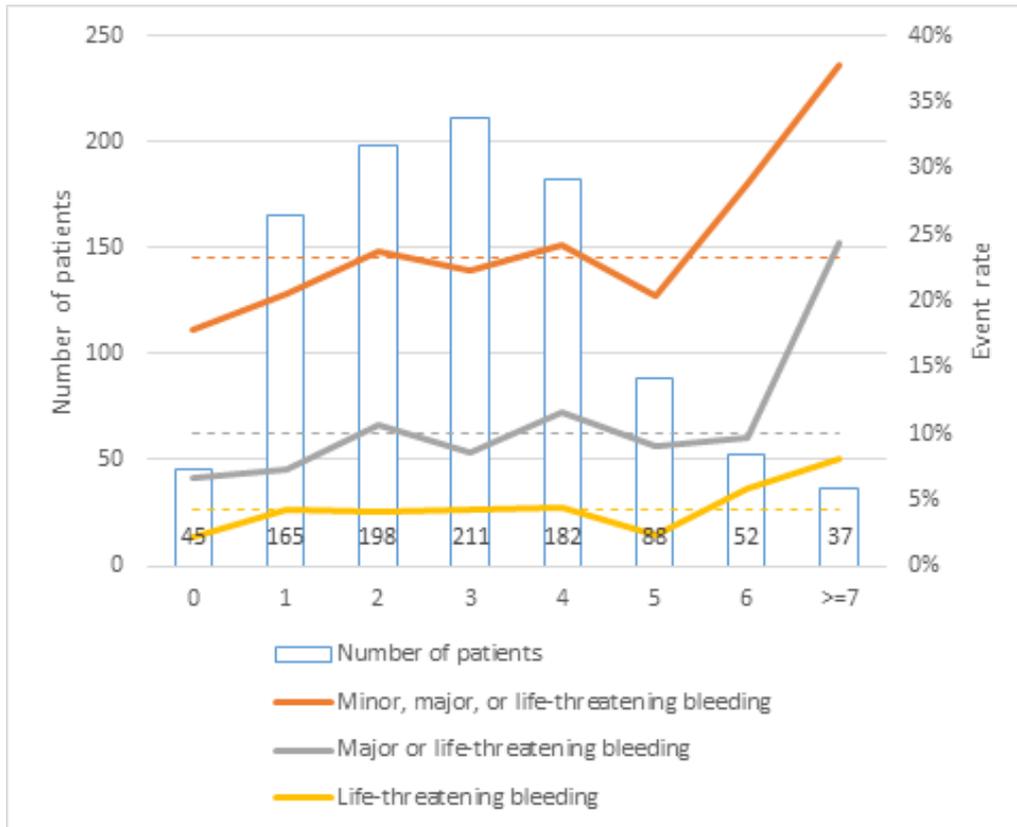
The feasibility of the ARC-HBR criteria was evaluated for the first time in TAVI patients. Assigning 2 points per major and 1 point per minor criterion, a score of 6 or above was associated with a higher bleeding risk.

Keywords:

TAVI, bleeding risk, ARC-HBR criteria

Abstract sessies Online NVVC Najaarscongres
Donderdag 5 en vrijdag 6 november 2020

Figure:
Event rates according to ARC-HBR score



Abstract sessies Online NVVC Najaarscongres
Donderdag 5 en vrijdag 6 november 2020

The Sports Cardiology Team: Personalizing Athlete Care Through a Comprehensive, Multidisciplinary Approach

Presenting author: J.C. van Hattum

Department: Cardiology

J.C. van Hattum (Amsterdam UMC, location AMC, Amsterdam) S.M. Verwijs (Amsterdam UMC, Amsterdam); Y.M. Pinto (Amsterdam UMC, Amsterdam); S.M. Boekholdt (Amsterdam UMC, Amsterdam); M. Groenink (Amsterdam UMC, Amsterdam); N.M. Panhuyzen-Goedkoop (Amsterdam UMC, Amsterdam); P.J. Senden (Meander MC, Amersfoort), A.R. Willems (OLVG, Amsterdam); I. Knobbe (Amsterdam UMC, Amsterdam); N.A. Blom (Amsterdam UMC, Amsterdam); N. Wijne (OLVG, Amsterdam); S.N. van der Crabben (Amsterdam UMC, Amsterdam); A.A.M. Wilde (Amsterdam UMC, Amsterdam); H.T. Jørstad (Amsterdam UMC, Amsterdam)

Purpose:

Specialized multidisciplinary teams are an integral part of cardiology. In emerging subspecialties such as sports cardiology, such approaches have not been established as standard of care.

Methods:

We established a multidisciplinary sports cardiology team in 2019 (Amsterdam UMC). Team members included sports physicians (with different expertise), cardiologists with specific expertise (sports, electrophysiology, imaging, cardiogenetics, paediatrics), cardio-radiologists, and clinical geneticists. Cases were contributed from cardiologists or referred nationally for expertise, with patients/athletes varying from recreational to elite-level.

Results:

We evaluated 88 athletes (April 2019 to August 2020). Athlete mean age was 30 (SD 15.9) years, 42% were professional athletes, and 90% men. Reasons for referral were ECG/exercise test abnormalities (25%), to discuss the diagnosis (35%), and personalized sports advice (22%) (Figure). The diagnosis was revised in 51% (n=45) cases. In 52% (n=16) of cases with no clear diagnosis at referral, no pathology was found after revision. Revision led to an underlying cardiomyopathy being diagnosed in 67% (n=14) of athletes referred primarily for arrhythmias (24%). A non-specified cardiomyopathy at referral (24%, n=21) was revised to HCM (33%), DCM (24%), and no pathology (33%). In total 3 S-ICDs and 3 ILRs were implanted according to team advice, and (further) medical treatment advised in 11% (n=10). Sports advice was not revised in the majority (78%, n=68), further personalized sports advice was given varying from no competitive sports to absolute restriction in 16% (n=14), and less restrictive in 7% (n=6).

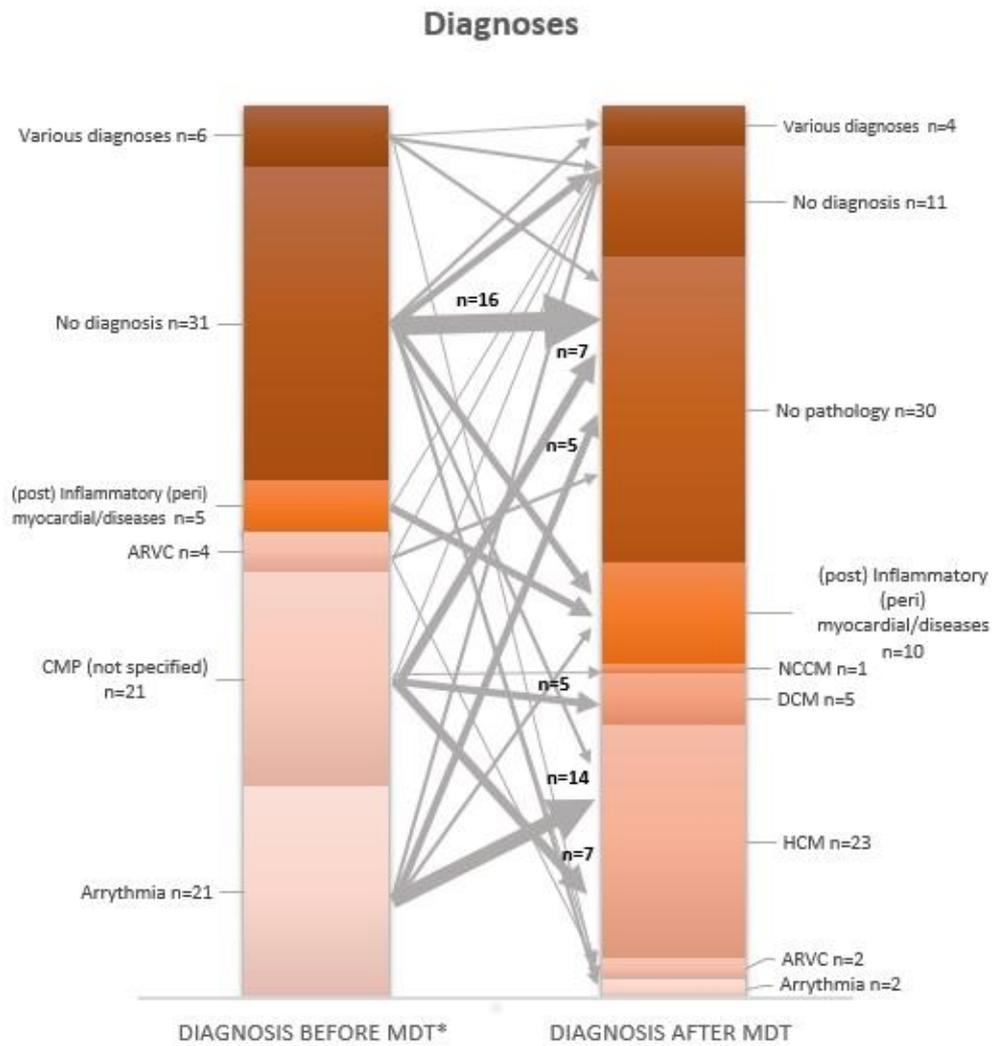
Conclusion:

Our experience with a comprehensive, multidisciplinary sports cardiology team demonstrates that such an approach is feasible, and leads to more personalised treatment- and sports advice in athletes. The team-based approach leads to a higher percentage of diagnoses. Our findings serve as a proof-of-concept of the added value of the sports cardiology team in care for athletes and patients.

Keywords:

Sports cardiology, Multidisciplinary, Team

Figure:



*MDT=multidisciplinary team

Abstract sessies Online NVVC Najaarscongres
Donderdag 5 en vrijdag 6 november 2020

Emergency Medical Service Evaluations for Chest Pain during the COVID-19 Lockdown in Hollands-Midden, the Netherlands

Presenting author: E.R. de Koning

Department: Cardiology

E.R. de Koning (LUMC, Leiden) J.M.J. Boogers (LUMC, Leiden): J. Bosch (RAVHM, Leiden): M. de Visser (RAVHM, Leiden): M.J. Schalij (LUMC, Leiden): S.L.M.A. Beeres (LUMC, Leiden)

Purpose:

To assess whether the COVID-19 lockdown might have had negative indirect health effects, as people seem to be reluctant to seek medical care.

Methods:

All emergency medical service (EMS) rides for chest pain and out-of-hospital cardiac arrest (OHCA) in the Dutch region Hollands-Midden (population served >800.000) were evaluated during the initial 6 weeks of the COVID-19 lockdown and compared to the same period in 2019 in two cohorts. The primary end-point was the incidence of evaluated chest pain patients during the COVID-19 lockdown. In addition, the incidence of EMS evaluations of ST elevation myocardial infarction (STEMI) and OHCA were assessed.

Results:

During the COVID-19 lockdown period, the EMS evaluated 927 chest pain patients (49% male, 62±17 years) as compared to 1041 patients (51% male, 63±17 years) in the same period in 2019 corresponding with a significant relative risk reduction of 0.88 (95% CI 0.81-0.96; P=0.006). Similarly, there was a significant reduction in the incidence of STEMI patients (RR 0.52; P=0.009) whereas the incidence of OHCA (RR 1.23; P=0.29) remained unchanged.

Conclusion:

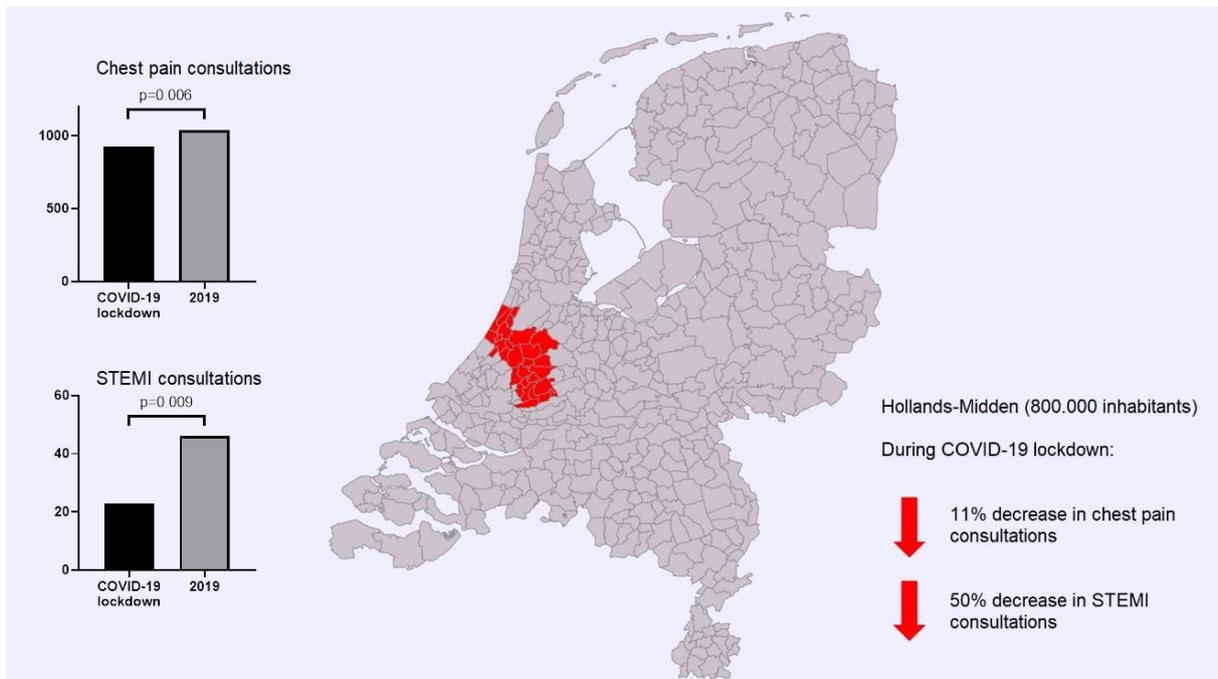
During the COVID-19 lockdown, there was a significant decrease in patients with chest pain evaluated by the EMS paralleled by a reduction in STEMI, while the incidence of OHCA remained similar. While the reason for the decrease in chest pain and STEMI consultations is not entirely clear, more attention should be drawn to the importance of contacting the EMS in case of suspected cardiac symptoms in possible future lockdowns.

Keywords:

COVID-19, Chest pain, STEMI

Abstract sessies Online NVVC Najaarscongres
Donderdag 5 en vrijdag 6 november 2020

Figure:



Abstract sessies Online NVVC Najaarscongres
Donderdag 5 en vrijdag 6 november 2020

First Experience with Percutaneous Tricuspid Valve Repair in the Netherlands

Presenting author: F. Meijerink

Department: Cardiologie

F. Meijerink (Amsterdam UMC, locatie AMC, Amsterdam) K.T. Koch (Amsterdam UMC, locatie AMC, Amsterdam), R.J. de Winter (Amsterdam UMC, locatie AMC, Amsterdam), J. Baan (Amsterdam UMC, locatie AMC, Amsterdam), B.J. Bouma (Amsterdam UMC, locatie AMC, Amsterdam)

Purpose:

Functional tricuspid regurgitation (TR) is common in patients with left-sided heart disease, atrial fibrillation (AF) and decreased right ventricular function and affects quality of life and survival. When surgery is deemed high-risk, percutaneous treatment is now possible. The aim of this study was to describe safety, effectiveness and outcome in our first series of patients undergoing percutaneous tricuspid valve repair (PTVR).

Methods:

PTVR was considered in patients with severe functional TR deemed high-risk for surgery. Percutaneous edge-to-edge repair was performed with the MitraClip device and delivery system (off-label use). TR was graded (mild, moderate, severe or massive) before and after PTVR. Symptomatic improvement was evaluated after > 6 weeks.

Results:

Nine patients underwent PTVR (median age 77 years, 33% male, 89% NYHA class ≥ 3 , 100% history of AF). Successful clip-implantation was achieved in 8/9 patients, whom all had reduction of ≥ 1 grade during the procedure. In 1 patient the coaptation gap was too large and prevented a successful grasp. Median number of implanted clips was 3 (range 1-4, clip location: anterior-septal and posterior-septal leaflets). Mortality (in-hospital and at follow-up) was 0% and no major complications occurred. Seven patients reported improvement of symptoms (NYHA 1 or 2) at follow-up.

Conclusion:

PTVR seems to be a promising treatment option for severe functional TR. In this pilot study it was safe and effective. Improvement of symptoms is observed in patients with TR reduction. Larger studies are needed to confirm these results and to determine long term benefit on quality of life and survival.

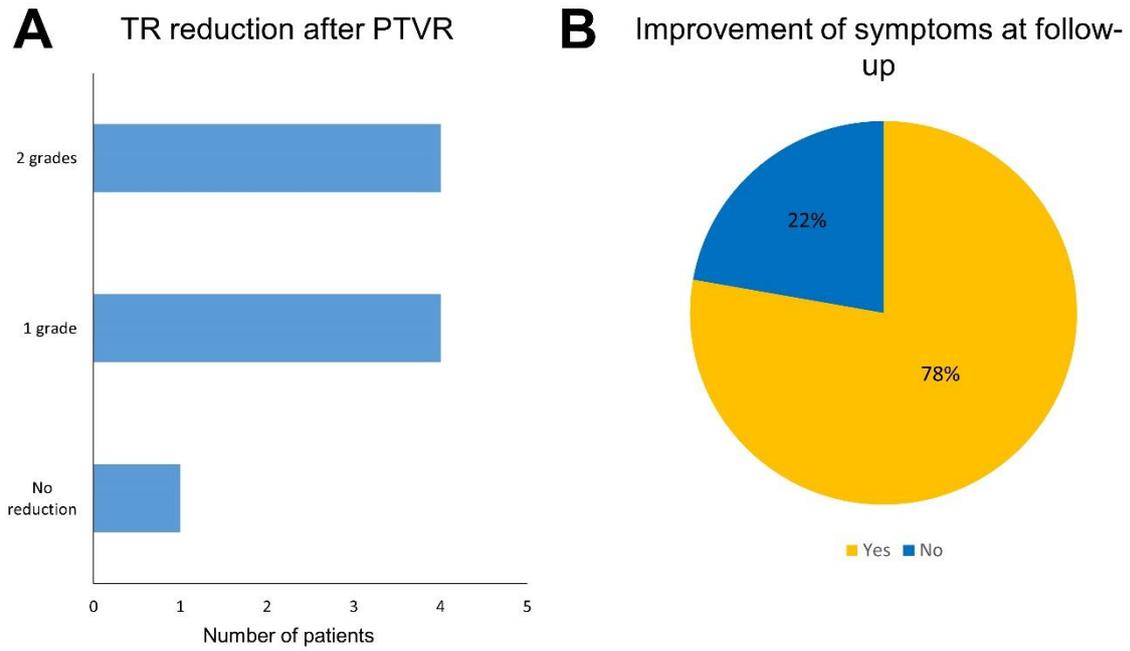
Keywords:

tricuspid regurgitation, percutaneous treatment, valve disease

Abstract sessies Online NVVC Najaarscongres
Donderdag 5 en vrijdag 6 november 2020

Figure:

Effect of percutaneous tricuspid valve repair on (A) TR reduction and (B) improvement of symptoms.



Abstract sessies Online NVVC Najaarscongres
Donderdag 5 en vrijdag 6 november 2020

Antibiotic Prophylaxis for Transfemoral Transcatheter Aortic Valve Implantation; a Nationwide Survey and Proposal for Uniform Prophylaxis

Presenting author: L. Veenis

Department: Cardiology

*L. Veenis (Amsterdam UMC, Amsterdam) M. Holierook (Amsterdam UMC, Amsterdam);
J.P.S. Henriques (Amsterdam UMC, Amsterdam)*

Purpose:

Periprocedural antibiotic prophylaxis for Transfemoral transcatheter aortic valve implantation (TF-TAVI) is frequently used to reduce the risk of endocarditis. Guidelines recommend periprocedural antibiotic but do not specify drug, dosage and frequency. There is however no uniform advise and antibiotic prophylaxis differs greatly amongst institutions. We therefore performed a nationwide survey of TF-TAVI periprocedural antibiotic prophylaxis practice in the Netherlands. In addition, we aimed to advocate an uniform antibiotic prophylaxis for TF-TAVI.

Methods:

We performed a nationwide survey of TF-TAVI periprocedural antibiotic prophylaxis practice in all Dutch TF-TAVI centers. We gathered information about drug, dosage and frequency and the use of nasal mupirocine.

Results:

In all hospitals antibiotic prophylaxis is given but varies per hospital, with a maximum of four doses. In a total of seven hospitals (44%) a single periprocedural dose is administered. In two hospitals (12,5%) no intravenous antibiotics are given, but only nasal mupirocine. In 25% of all hospitals nasal mupirocine is administered as a supplement to Cefazoline.

Conclusion:

Antibiotic prophylaxis for TF-TAVI varies per hospital in drug, dosage and frequency, including the use of nasal mupirocine. We advocate an uniform antibiotic prophylaxis for TF-TAVI. We have suggested a single dose of 2000 mg Cefazoline 30-60 min before procedure for most patients.

Keywords:

Transfemoral transcatheter aortic valve implantation, TAVI, Antibiotic prophylaxis

Abstract sessies Online NVVC Najaarscongres
Donderdag 5 en vrijdag 6 november 2020

Figure:

TF-TAVI = Transfemoral Transcatheter Aortic Valve Implantation

*mg = milligram

**= concomitant nasal mupirocine, starting 1 day before through to 5 days after TF TAVI

Center	Drug pre-procedural	Dosage (mg*)	Drug post-procedural	Dosage (mg*)	Timing of post-procedural administration	Mupirocine**
1	Cefazoline	2000	-	-	-	None
2	Cefazoline	2000	-	-	-	None
3	Cefazoline	2000	-	-	-	None
4	Cefazoline	2000	Cefazoline	1000	8, 16 and 24 hours	None
5	Cefazoline	2000	Cefazoline	2000	8 and 16 hours	5 days
6	Cefazoline	2000	Cefazoline	2000	4 - 6 hours and 10 hours	None
7	Cefazoline	2000	Cefuroxime	750	3 dosages within 24 hours	5 days
8	Cefazoline	1000	-	-	-	None
9	Cefazoline	1000	-	-	-	None
10	Cefazoline	1000	-	-	-	None
11	Cefazoline	1000	Cefazoline	1000	8 and 16 hours	None
12	Cefazoline	1000	Cefazoline	1000	22.00 PM and 08.00 AM next day post procedural	5 days
13	Cefuroxime	1500	Cefuroxime	1500	12 and 24 hours	5 days
14	-	-	Cefazoline	2000	-	None
15	none	-	-	-	-	5 days
16	none	-	-	-	-	5 days

Abstract sessies Online NVVC Najaarscongres
Donderdag 5 en vrijdag 6 november 2020

Hinge Point Fibrosis is a Common Finding in Asymptomatic Elite Male Water Polo Players

Presenting author: S.M. Verwijs
Department: Cardiology

*S.M. Verwijs (Amsterdam UMC, University of Amsterdam, Department of Cardiology, Amsterdam); J.C. Van Hattum (Amsterdam UMC, Amsterdam); Y.M. Pinto (Amsterdam UMC, Amsterdam); S.M. Boekholdt (Amsterdam UMC, Amsterdam); R.N. Planken (Amsterdam UMC, Amsterdam); M. Groenink (Amsterdam UMC, Amsterdam); A. Van Randen (Amsterdam UMC, Amsterdam); A.J. Bakermans (Amsterdam UMC, Amsterdam); A.J. Nederveen (Amsterdam UMC, Amsterdam); A.M. Van Den Berg-Faaij (Amsterdam UMC, Amsterdam); R.D. Van Luijk (Amsterdam UMC, Amsterdam); M.H. Moen (Nederlands Olympisch Comité*Nederlandse Sport Federatie, Arnhem); C.R. Van Den Hoogenband (Nederlands Olympisch Comité*Nederlandse Sport Federatie, Arnhem); A.A.M. Wilde (Amsterdam UMC, Amsterdam); H.T. Jorstad (Amsterdam UMC, Amsterdam)*

Purpose:

Cardiac magnetic resonance imaging (CMR) with late gadolinium enhancement (LGE) helps clinicians differentiate between physiological adaptation to sports and pathology. However, sports-specific CMR and LGE findings are lacking. Therefore, we aimed to establish a sports-specific baseline for CMR indices.

Methods:

We performed a cross-sectional CMR study in water polo players, including cine imaging and LGE (3 Tesla, Philips). We used CVI42 for CMR analyses; R for statistical analyses.

Results:

We included 23 asymptomatic male (potential) Olympic water polo players, mean age (\pm SD) 25.3 ± 3.6 years and body surface area (BSA) 2.23 ± 0.2 m². We observed biventricular dilatation, with respectively for the left- and right ventricle indexed end-diastolic volumes of 111 ± 11 ml and 120 ± 17 ml, stroke volumes of 145 ± 29 ml and 143 ± 27 ml, and ejection fractions of $58.0\pm 7.0\%$ and $54.0\pm 7.0\%$. Thirteen athletes (56.5%) had LGE consistent with hinge point fibrosis (HPF+, Figure). One athlete had aspecific non-HPF LGE (LGE+). In LGE+ and HPF+ groups, there was a trend towards a smaller BSA (2.18 ± 0.18 m² in LGE+ vs 2.31 ± 0.10 m² in LGE-, $p=0.055$, and 2.18 ± 0.18 m² in HPF+ vs 2.30 ± 0.10 m² in HPF-, $p=0.076$). We observed no other morphological differences between the groups.

Conclusion:

Myocardial fibrosis is present in 57% of asymptomatic elite male water polo players, with a predilection for the inferior hinge point. Our findings suggest that HPF could be a normal finding in athletes instead of an early sign of pathology. Further studies are warranted to investigate if HPF is associated with long-term cardiac changes or the development of pathology.

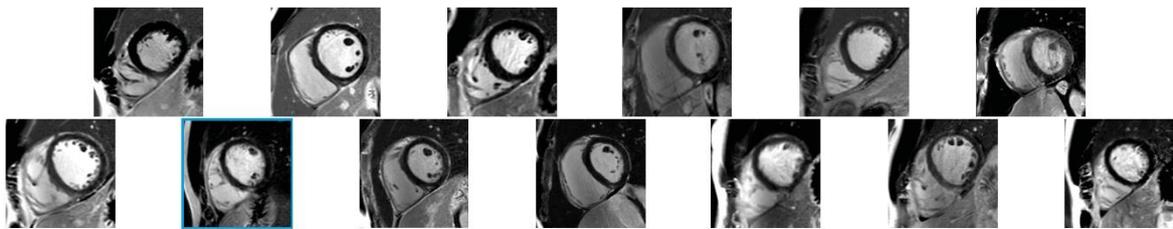
Keywords:

Hinge point fibrosis, Cardiac Magnetic Resonance, Elite athlete

Figure:

(A) Overview of cases with hinge point fibrosis: single slice per case for each athlete (n=13) with late gadolinium enhancement (LGE) consistent with hinge point fibrosis (HPF). (B) Case-example of an asymptomatic elite male water polo player with inferior HPF: individual LGE images used to plot polar map (left); schematic representation of the location of LGE in the left ventricle myocardial wall (LV). The centre of the polar map plot represents the apical segments of the LV, the outer ring of the polar map represent the basal segments of the LV, while the colour represents the relative area of LGE in the LV with a threshold of a signal intensity of more than 6 times the SD of the reference myocardium, the white-lined overlay represents the 17 segment cardiac model, the grey-lined overlay represents the anterior and inferior hinge point (right).

Cases with hinge point fibrosis



Late gadolinium enhancement polar map case example

