

Winter Arrhythmia Annual Cardiac Arrhythmia Meeting Division of Cardiology, University of Toronto

Driving, Flying and Sports in Patients with Arrhythmias

Suzette Turner RN, MS, FNP International Arrhythmia Winter School February 11th, 2017



Séminaire Winter Arrhythmia Annual Cardiac Arrhythmia Meeting Division of Cardiology, University of Toronto

Disclosures

Relationship with commercial interests

•None







- To review the Canadian guidelines on driving in patients with arrhythmias/cardiac devices
- To review when to report driving restrictions
- To review the Canadian guidelines on flying in patients with a history of arrhythmias/cardiac devices
- To review the implications of sports in the patient with arrhythmias/cardiac devices

Driving as a Trigger

• **↑** psychological stress in the form of anger & anxiety Sluter et al (1998) Occup Environ Med; 55: 407-413

Driving as a Trigger

- **↑** psychological stress in the form of anger & anxiety Sluter et al (1998) Occup Environ Med; 55: 407-413
- **^**HR and precipitation of angina in patients with known CAD

Taggart & Sommerville (1969) Br Med J; 4; 130-134

Driving as a Trigger

- **↑** psychological stress in the form of anger & anxiety Sluter et al (1998) Occup Environ Med; 55: 407-413

Taggart & Sommerville (1969) Br Med J; 4; 130-134

 Physiological CV changes (个BP, HR and 个 PR) associated with anger precipitated by traffic jams
 Fairclough & Spiridon (2012) Int J Psychophysiol; 84: 188-193

Risk of Harm (RH)

- = Driving time (TD) % x vehicle type (V) (commercial/private) x annual risk of syncope (SCI) x probability of injury (I)
- RH=TDx V x SCI x AC
- Average private driver spends 4% of time behind the wheel (0.04%)
- Average commercial driver 25% of time behind the wheel (0.25%)

Simpson, CJC (CCC risk of harm formula) 2004

Reporting – Highway traffic act regulation 203(1)

"Every legally qualified medical practitioner shall report to the registrar the name, address and clinical condition of every person 16 years of age or older that has a medical condition that makes it dangerous for such a person to operate a motor vehicle"

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Reporting – regulations governing

Jurisdiction	Reporting	Medical doctor protection for reporting	Legislation
Alberta	Discretionary	Protected	Motor Vehicle Administration Act, R.S.A. 1980, c. M-22
British Columbia	Mandatory if the unfit driver has been warned not to drive but continues to do so	Not protected	Motor Vehicle Act, R.S.B.C. 1986, c. 318
Manitoba	Mandatory	Protected	Highway Traffic Act, S.M. 1985-1986, c.3-Cap.H60 (consolidated to February 1998)
New Brunswick	Mandatory	Protected	Motor Vehicle Act, R.S.N.B., c. M-17, 1973 as amended by S.N.B. 1994, c. 4, s. 6
Newfoundland and Labrador	Mandatory	Protected	Highway Traffic Act, R.S.N. 1990, cH-3 as amended by S.N. 1992, c. 26, s.1
Northwest Territories (NWT)	Mandatory	Protected, unless acting maliciously or without reasonable grounds	Motor Vehicles Act, R.S. N.W.T. 1988, c. M-16
Nunavut (currently applying NWT legislation)	Mandatory	Protected, unless acting maliciously or without reasonable grounds	Motor Vehicles Act, R.S. N.W.T. 1988, c. M-16
Nova Scotia	Discretionary	Protected	Motor Vehicle Act, R.S.N.S. 1989, c. 293
Ontario	Mandatory	Protected	Highway Traffic Act, R.S.O. 1990, c. H.8
Prince Edward Island	Mandatory	Protected	Highway Traffic Act, R.S.P.E.I. 1988, cH-5
Quebec	Discretionary	Protected	Highway Safety Code, C-24.2
Saskatchewan	Mandatory	Protected	Vehicle Administration Act, S.S. 1986, c. V-2.1 as amended by the Highway and Vehicle Statutes Amendment Act 1996, c. 29, s. 35
Yukon	Mandatory	Protected	Motor Vehicle Act, R.S.Y. 1986, c. 118

SPECIAL ARTICLE

CCS Consensus Conference 2003: Assessment of the cardiac patient for fitness to drive and fly – Executive summary

	Robert Sheldon MD PhD, Calgary, Alberta;
Chris Simpson MD (Co-Chair), Kingston, Ontario;	Chris Soder MD, Halifax, Nova Scotia;
David Ross MD (Co-Chair), Edmonton, Alberta;	Jim Stone MD, Calgary, Alberta;
Paul Dorian MD, Toronto, Ontario;	Jan Surkes MD, Langley, British Columbia;
Vidal Essebag MD, Montreal, Quebec;	Claude Thibeault MD, Montreal, Quebec;
Anil Gupta MD, Brampton, Ontario;	Michael Tyrrell MD, Saskatoon, Saskatchewan;
Robert Hamilton MD, Toronto, Ontario;	Andreas Wielgosz MD, Ottawa, Ontario
Stephen Hart MD, Fredericton, New Brunswick;	Secondary Panel
Barry Hoffmaster PhD, London, Ontario;	Jawed Akhtar, David Borts, Joanne Braithwaite
George Klein MD, London, Ontario;	(for the Saskatchewan Government Insurance
Andrew Krahn MD, London, Ontario;	Medical Review Unit);
Peter Kryworuk LLB, London, Ontario;	Eric Cohen, Louise Costa (Driver Improvement
L Brent Mitchell MD, Calgary, Alberta;	Office, Ontario Ministry of Transportation);
Paul Poirier MD, Quebec, Quebec;	Jack Hirsh, Henryk Kafka, Joel Niznick, Neil Swirsky,
Heather Ross MD, Toronto, Ontario;	Mario Talajic, Daniel Tessier (VP Public Affairs,
Magdi Sami MD, Montreal, Quebec;	Canadian Automobile Association);
Francois Sestier MD, Montreal, Quebec;	Guy Tremblay
Conference 2003: Assessment of the cardiac patient for fitness to drive and fly — Executive summary. Can J Cardiol 2004;20(13):1313-1323.	L'évaluation de l'aptitude de conduire ou de piloter du patient cardiaque
Nearly every Canadian physician is called on from time to time to assess the fitness of a patient to either drive a motor vehicle or fly in an aircraft. Cardiac patients comprise a distinct group of patients who frequently require such an evaluation. In fact, many Canadian juris- dictions have legislated mandatory physician reporting requirements for drivers who may be unfit to drive for medical reasons. These guidelines aim to serve both physicians and policy-makers who must assess the fitness of cardiac patients to drive and fly. As much as possible, they are derived from scientific principles and objective assessments of risk. Summary tables of recommendations, organized by disease or condition, are presented.	Pratiquement tous les médecins canadiens sont appelés de temps à autre à évaluer la capacité d'un patient à conduire un véhicule automobile ou à pilorer un avion. Les patients cardiaques représentent un groupe distinct de patients qui ont souvent besoin d'une telle évaluation. En fait, de nombreux territoires canadiens imposent aux médecins de déclarer les conducteurs susceptibles d'être inaptes à conduire pour des raisons médicales. Les présentes lignes directrices visent à aider tant les médecins que les décideurs qui doivent évaluer l'aptitude des patients cardiaques à conduire tou à ploter. Dans la mesure du possible, elles sont dérivées de principes scientifiques et d'évaluations objectives du risque. Des tableaux sommaires de recommandations, présentés par maladie ou par pathologie, sont présentés.
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Correspondence: Dr Chris Simpson, Kingston General Hospital, 76 Stuart Street, Kingston, Ontario K7L 2V7. Telephone 613-549-6666 ext 3377, fax 613-548-1387, e-mail simpsonc@kgh.kari.net Received for publication September 29, 2004. Accepted October 5, 2004

SPECIAL ARTICLE

CCS Consensus Conference 2003: Assessment of the cardiac patient for fitness to drive and fly – Executive summary

Primary Panel

Chris Simpson MD (Co-Chair), Kingston, Ontario; David Ross MD (Co-Chair), Edmonton, Alberta: Paul Dorian MD, Toronto, Ontario; Vidal Essebag MD, Montreal, Quebec; Anil Gupta MD, Brampton, Ontario; Robert Hamilton MD, Toronto, Ontario; Stephen Hart MD, Fredericton, New Brunswick; Barry Hoffmaster PhD, London, Ontario; George Klein MD, London, Ontario; Andrew Krahn MD, London, Ontario: Peter Kryworuk LLB, London, Ontario: L Brent Mitchell MD, Calgary, Alberta; Paul Poirier MD, Quebec, Quebec; Heather Ross MD, Toronto, Ontario; Magdi Sami MD, Montreal, Quebec; Francois Sestier MD, Montreal, Quebec;

C Simpson, D Ross, P Dorian, et al. CCS Consensus Conference 2003: Assessment of the cardiac patient for fitness to drive and fly — Executive summary. Can J Cardiol 2004;20(13):1313-1323.

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Key Words: Arrhythmias; Cardiac disease; Heart failure; Motor vehicle accidents; Public policy; Syncope

MESSAGE FROM THE CO-CHAIRS

Every year, the Canadian Cardiovascular Society sponsors a consensus conference. These conferences have traditionally produced documents that have served to provide guidance to the profession regarding topical or controversial issues.

This year's conference, "Assessment of the Cardiac Patient for Fitness to Drive and Fly", first convened in October 2002. Our primary panel was divided into two subgroups, the "Drive" subgroup and the "Fly" subgroup, which met separately and developed two sets of recommendations. This executive summary document is similarly organized into two major sections: Robert Sheldon MD PhD, Calgary, Alberta; Chris Soder MD, Halifax, Nova Scotia; Jim Stone MD, Calgary, Alberta; Jan Surkes MD, Langley, British Columbia; Claude Thibeault MD, Montreal, Quebec; Michael Tyrrell MD, Saskatoon, Saskatchewan; Andreas Wielgosz MD, Ottawa, Ontario

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Eric Cohen, Louise Costa (Driver Improvement Office, Ontario Ministry of Transportation); Jack Hirsh, Henryk Kafka, Joel Niznick, Neil Swirsky, Mario Talajic, Daniel Tessier (VP Public Affairs, Canadian Automobile Association); Guy Tremblay

La conférence consensuelle 2003 de la SCC : L'évaluation de l'aptitude de conduire ou de piloter du patient cardiaque

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"Assessment of the cardiac patient for fitness to drive", and "Assessment of the cardiac patient for fitness to fly".

This year's consensus conference has been a collaborative effort involving both physicians and nonphysician stakeholders from across Canada. We are grateful to the volunteer members of the primary and secondary panels who have worked diligently toward the creation of this document. Our hope is that these guidelines will serve as a practical aid to those involved in the assessment of cardiac patients' fitness to drive and fit.

> David Ross MD Chris Simpson MD

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CMA Driver's Guide

Determining Medical Fitness to Operate Motor Vehicles

8th edition



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CMA D **Determining Medical Fitne**

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Canadian Cardiovascular Society

Leadership, Knowledge, Community,

Drive+Fly Guidelines

Adapted from CCS Driving & Flying Guidelines (2003 + 2012 update).

Developers

Chi-Ming Chow MD FRCPC Paul Dorian MD FRCPC Edward Brawer BSc (Hons) Andrea Gauthier BA (Hons) MScBMC

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Section 203 of the <i>Highway Traffic Act</i> requires that all legally qualified medical practitioners must report to the Registrar of Motor Vehicle name, address and clinical condition of any patient sixteen years of age or older who, Tis suffering from a medical condition that may mediangeous for the person to operate a motor vehicle". To simplify the reporting process, the Ministry of Transportation has created this for Mail or fax to: Ministry of Transportation. Driver Improvement Office. Medical Review Section, 77 Wellesley St. W. Box S89, Toronto ON 11N3. Tel. No. 416 235-1773 or 1800 268-1481. Fax No.: 416 235-3400 or 1800 304-7889.	ario
Patient Information First Name Middle initial Fee Schedul Last Name First Name Middle initial Fee Schedul Street No. and Name or Lot and Cone, and Township App. No. City, Town or Village Postal code Date of Birth Durver Licence No. (if available) YA Mode Female For your convenience, the following is a list of the more common medical conditions that are reported to MTO, to be marked or an 'X'. If the condition you are reporting is not listed, please indicate it in the section marked 'Other'. A lochol Dependence Diabetes of Hypoglycemia - Uncontrolled Diabetes of Hypoglycemia - Uncontrolled Seizure(s)-Cerebral Biakout or Loss of consciousness or Awareness Sleep Apnea-Uncontrolled Biakout or Loss of consciousness or Awareness Sleep Apnea-Uncontrolled Both Visual Acuity and Visual Field Impairment Motor Function/Ability Impaired Visual Acuity Impairment Other (specify): Optional To expedite your patient's file, please provide further elaboration of clinical condition (if available) or attach as a separate report: Diagnos Other Relevant Clinical Information (i.e current status - including results of investigations, medication(s), treatment and prognosis); and whether or not the condition is a serious risk to road safety, threat to road safety is unknown or condition is temporary - weeks/	re it m.
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Physician's Last Name, First Name and Middle Initial Street No. and Name or Lot and Conc, and Township City, Town or Village Postal code Telephone. No.	
Family Physician Emergency Room Physician Specialist Other Other	
Doctor's Signature Date of Report	D/J

SYNCOPE causing MVA

 The maximum likelihood of a syncopal spell causing an accident resulting in either death or serious injury resulting in death or serious injury <0.0017% per driver year

Hsen, T., et al (2016) JACC: Clincal Electrophysiology 2 (2) 203-208

Incidence

 Approximately 1% of all MVAs are caused by driver's sudden incapacitation

• 5-10% are related to cardiac causes with or without syncope

Sorajja & Shen (2010) Current Treatment Options in Cardiovascular Medicine 12(5) 443-56

Case Study 1

- 49/F with an ICD receives multiple appropriate shocks with LOC. How long should her license be suspended?
 - A. 1 month
 - B. 3 months
 - C. 6 months
 - D. No suspension

Case Study 1 (RM)

- 49Fwith an ICD receives multiple appropriate shocks with LOC. How long should her license be suspended?
 - A. 1 month
 - B. 3 months
 - C. 6 months
 - D. No suspension

ICDs

Primary prophylaxis	1 month	Disqualified
Secondary prophylaxis for VT or VF with decreased LOC	6 months	Disqualified
Sustained VT (not hemodynamically significant) EF <35	3 months waiting period (+ 1 week post ICD implant)	Disqualified
Sustained VT (not hemodynamically significant) EF >35	1 month waiting period + additional waiting period for VT	Disqualified
Any device therapy (shock or ATP) which is <u>associated with</u> <u>decreased LOC or</u> <u>therapies delivered were</u> <u>disabling</u>	Additional 6 month wait	Disqualified

Pacemakers

Private	Commercial
Waiting period <u>1 week</u>	Waiting period <u>1 month</u>

Ventricular Arrhythmias

	Private	Commercial
VF (no reversible cause)	6 months	Disqualified
Hemodynamically unstable VT	6 months	Disqualified
VT/VF due to reversible cause	No driving unless succe	ssful treatment of condition
Sustained VT, no LOC LVEF <30%	3 months	Disqualified
Sustained VT, LVEF > 30%	4 weeks	3 months
Nonsustained VT with no impairment	No restric	

*Examples include, but are not limited to, ventricular fibrillation (VF) within 24 h of myocardial infarction, VF during coronary angiography, VF with electrocution and VF secondary to drug toxicity. Reversible-cause VF recommendations overrule the VF recommendations if the reversible cause is treated successfully and the VF does not recur. ICD Implantable cardioverter defibrillator; LVEF Left ventricular ejection fraction; VT Ventricular tachycardia

Case 2

- 85/M with multiple episodes of unexplained syncope- 3 within last year NYD
 - A. 1 week
 - B. 3 months
 - C. 6 months
 - D. 12 months





Driving	Private	Commercial
Single episode of VV	No restriction	No restriction
Diagnosed and treated cause e.g. PPM	1 week after treatment	1 month after restriction
Situational syncope with avoidable trigger	1 week	1 week
Single episode of unexplained syncope	1 week	12 months
Recurrent within 12 months	1 week	12 months
Recurrent episodes of unexplained syncope	3 months	12 months

Case 3

- 37/M private driver with single episode of syncope
 - A. 1 week
 - B. 3 months
 - C. 12 months
 - **D.** No suspension





Driving	Private	Commercial
Single episode of vasovagal	No restriction	No restriction
Diagnosed and treated cause e.g. PPM	1 week after treatment	1 month after restriction
Situational syncope with avoidable trigger	1 week	1 week
Single episode of unexplained syncope	1 week	12 months
Recurrent within 12 months	1 week	12 months
Recurrent episodes of unexplained syncope	3 months	12 months

Case 4

- You get asked, I have a 50/M –bus driver with poorly controlled AF. How long should his license be suspended?
 - A. 1 month
 - B. 3 months
 - C. 6 months
 - D. No suspension



SVT and Driving

- SVT-successful radiofrequency ablation of the substrate
 - A 3 month waiting period on medical therapy with no recurrence of SVT associated with cerebral ischemia during this time
 - AF-3 month waiting period after appropriate treatment during which there are no recurrence of symptoms

Driving -Other

Condition	Private	Commercial
Brugada syndrome, LQT syndrome, ARVC	 Appropriate investigations and treatment guided by a cardiologist Waiting period 6 months after any event causing cerebral ischemia 	Disqualified
Catheter ablation procedure EPS with no sustained arrhythmias	Waiting period 48 hours	Waiting period 1 week





Flying with Cardiac Implanted Electronic Devices (CIED)

- Archway style security metal should not affect the operation of ICDs or PPMs
- Independent testing performed on ICDs and PPMs from various manufacturers showed no device inhibition, inappropriate detection, or reprogramming by any of the units during a slow walk-through (10 s to 15 s)
- Remaining in the archway for longer periods should be avoided

Simpson, CJC 2004

Flying

Condition	NYHA functional class	Travel by commercial airline
Arrhythmia post procedure	1-11	Well controlled SVT-unrestricted
	-	1 day post procedure for SVT
	1-11	2 days for ventricular arrhythmias
	III-IV	Uncontrolled hemodynamically unstable – <i>no commercial flight</i>
Post PPM/ICD/ILR	I-II	1 day post implant if no pneumothorax
ICD patients	1-11	1 month following last intervention associated with presyncope/syncope

Airport Security with CIED

- A hand-held detector wand has the potential to temporarily inhibit an ICD or PPM's output
- Passing the wand over the ICD or PPM may result in a brief pause in the patient's heart rhythm- would be extremely unlikely to be harmful
- More frequent movement of the detector wand over the ICD or PPM has the potential for causing increased interference with device operation
- If a hand-held detector wand must be used, it should not be passed over the device area more than once every 5 s

Flying



Sports/Exercise



Benefits of Exercise

DISEASE PREVENTION

- Cardiovascular
- Diabetes
- Osteoporosis, joint health
- FITNESS
- WEIGHT CONTROL
- ENJOYMENT
 - Personal Goals
 - Competition

36TH BETHESDA CONFERENCE

Introduction: Eligibility Recommendations for Competitive Athletes With Cardiovascular Abnormalities—General Considerations

Barry J. Maron, MD, FACC, Co-Chair Douglas P. Zipes, MD, MACC, Co-Chair

> come to recognition. Although differences of opinion exist and little direct evidence is available, the panel asserts that the presence of an ICD (whether for primary or secondary prevention of sudden death) should disqualify athletes from most competitive sports (with the exception of lowintensity, class IA), including those that potentially involve bodily trauma.

THE 36TH BETHESDA CONFERENCE

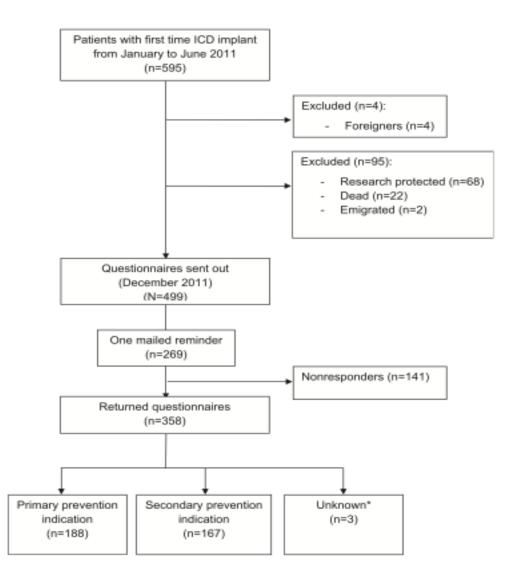
Medscape III. High (>50% MVC) Bobsledding/luge^{†‡}, field events Boxing[†], canoeing/kayaking, (throwing), gymnastics11, martial Body building^{tt}, downhill skiing^{tt}, cycling¹¹, decathlon, rowing, skateboarding¹¹, snowboarding¹¹, arts1, sailing, sport climbing, speed-skating^{t1}, triathlon^{t1} water skiing^{t1}, weight lifting^{t1}, wrestling windsurfing¹⁴ II. Moderate (20-50% MVC) Basketball[†], ice hockey[†], American football[†], field events (jumping), figure skating[†], cross-country skiing (skating Archery, auto racing^{t1}, diving^{t1}, technique), lacrosse[†], running rodeoing^{†‡}, rugby[†], running (sprint), equestrian11, motorcycling11 (middle distance), swimming, surfing^{1‡}, synchronized swimming[‡] team handball Increasing static component Badminton, cross-country I. Low (<20% MVC) skiling (classic technique). Baseball/softball[†], fencing, field hockey[†], orienteering, Billiards, bowling, cricket, table tennis, volleyball race walking, racquetball/ curling, golf, riflery squash, running (long distance), soccer[†], tennis A. Low **B. Moderate** C. High (<40% max O_) (40-70% max O_) (>70% max O_) Increasing dynamic component Source: Future Cardiol © 2013 Future Medicine Ltd

- "With my pacemaker I will have to slow down." This is false. In our practice, we have pacemaker patients who play sports such as golf, tennis, or basketball. Pacemaker patients can even participate in more strenuous activities such as marathons or scuba diving after consultation with their cardiologists. Any activity restrictions usually result from other medical problems and not from the pacemaker.
- •There are some situations to be avoided if you have a pacemaker/ICD, such as full-contact sports, which may damage the cardiac devices

Ellenbogen, Circ 2002

Patients with ICD

- (1) physical activity status among ICD patients by indication compared to a matched healthy population in order to detect potentials for improved physical outcomes
- (2) patients' beliefs regarding and participation in physical exercise by indication
- (3) factors predicting low physical activity
- (4) physical activity as a predictor of mortality
- For each person in the ICD population they matched 3 persons from the survey with the same age and sex, except for 1 patient with only 2 reference persons



Variable	Reference Population	ICD Population	P*	Primary Prevention Indication	Secondary Prevention Indication	Р*
n	1073	358		188	167	
Leisure-time physical activity						
Hard exercise	18 (2)	7 (2)	<.0001	2 (1)	5 (4)	.02
Moderate physical activity	274 (26)	50 (16)		18 (11)	32 (23)	
Low-level physical activity	685 (64)	183 (60)		105 (64)	75 (54)	
Sedentary	86 (8)	65 (21)		38 (23)	27 (19)	

Table 2 Physical activity among patients with an ICD by indication and compared with an age- and sex-matched normative population

- 21% of the ICD population were sedentary compared with 8% in an age- and sex-matched reference population without any longstanding diseases (**P**<.0001)
- In the reference population, a larger proportion was moderately physically active when compared with the ICD population.
- Patients with primary prevention indication had lower physical activity

Kikkenborg, Archives of Physical Medicine and Rehabilitation 2015

Variable	Unadjusted	Adjusted *
Leisure-time PA		
Hard/moderate	1.00 (ref)	1.00 (ref)
Low/sedentary	1.29 (0.29-5.83)	1.56 (0.30-8.02)
MET categorical		
Medium/high PA	1.00 (ref)	1.00 (ref)
Low PA	3.91 (1.11-13.71) [†]	3.27 (0.92-11.58
Follow guidelines		
Yes	1.00 (ref)	1.00 (ref)
No	1.11 (0.25-4.87)	1.14 (0.24-5.41)

DA predictor of mortality 15 months after support

Table 4

NOTE. Values are unadjusted hazard radios (95% confidence intervals). Abbreviations: PA, physical activity; ref, reference.

* Cox regression model adjusted for age (continuous), sex, marital status (married or not), and Tu comorbidity index. [†] P<.05.</p>

- During the 15 months of follow-up after return of the questionnaire, 16 patients died
- A low MET category was associated with increased mortality (unadjusted hazard ratio, 3.91; 95% confidence interval, 1.11-13.71), which became nonsignificant when adjusted for age, sex, marital status, and comorbidity

Study Conclusions

- The level of physical activity was significantly lower in the ICD population compared with an age and sex-matched population
- Patients receiving an ICD for primary prevention indication were significantly less active than patients receiving an ICD for secondary prophylaxis- high comorbidity predicts lower physical activity
- Low physical activity was associated with increased mortality; however, it was not significant after adjustment
- Encourage patients with implantable devices to Exercise/Be Active

Exercise

- Exercise is good for you
- Everybody should exercise
- Exercise carries a small risk of cardiac event that is age specific
- Get appropriate screening
- Don't ignore symptoms. There is no lifetime warrantee from a single screening

Conclusions

Take your time and discuss the patients' needs

Use the guidelines but also use your personal judgment

Report the patients' fitness to drive as appropriatediscuss with the patients

Encourage exercise





Séminaire Winter Arrhythmia Annual Cardiac Arrhythmia Meeting School

Annual Cardiac Arrhythmia Meeting Division of Cardiology, University of Toronto

THANKS

14th Annual Collingwood, Ontario, February 10 -12, 2017

Websites of Interest

- Assessment of the cardiac patient fitness to drive and fly <u>www.ccs.ca/images/Guidelines/Guidelines.../DF_CC</u> <u>2003_ES</u>
- Drive and fly guidelineswww.ccsguidelineprograms.ca/ccsapps/
- MOT

http://www.mto.gov.on.ca/english/driver/index.shtml\

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MET

1.	Sitting	1.0
2.	Walking at 2.5 m/h	2.9
3.	Biking at 10 m/h	4.0
4.	Elliptical	5.5
5.	Jogging	7.0
6.	Swimming (moderate)	8.0
7.	Swimming (hard)	12.0
8.	Running 8 min mile	12.5
9.	Bike Racing (not drafting) > 20m/	′h16.0

CLASS	AGE	
A	18	Any combination of motor vehicle and towed vehicle where towed vehicle exceeds 4,600 kg, but not a bus carrying passengers. Also per- mitted to operate a Class D and G vehicle.
В	21	Any School Purposes Bus. Also permitted to operate a Class C, D, E, F and G vehicle.
c	18	Any Regular Bus other than a school purposes bus. Also permitted to operate a Class D, F and G vehicle.
D	18	Any motor vehicle or combination of vehicles exceeding 11,000 kg, provid- ed the towed vehicle does not weigh more than 4,600 kg Also permitted to operate a Class G vehicle.
E	21	School Purposes Bus – maximum 24-passenger capacity. Also permitted to operate a Class F and G vehicle.
F	18	Regular Bus maximum of 24-passenger capaci- ty and ambulances. Also permitted to operate a Class G vehicle.
G	16	Any automobile, small truck or combination of vehicles that do not weigh or have a registered gross weight of over 11,000 kg provided the towed vehicle does not weigh more than 4,600 kg ³ . This does not include a motorcycle, a bus carrying passengers or an ambulance in the course of providing ambulance service.
		'A pick-up truck towing a 2 axle house trailer by a fifth wheel will be deemed a Class G vehicle provided the combined gross weight is not in excess of 11,000 kg.
G1	16	 Any motor vehicle in Class G and any combination of a motor vehicle in Class G and towed vehicles. Must be accompanied by a driver of 4 years & not drive between 00:00-05:00. Must have a blood alcohol level of 0 and no more people than seatbelts.