UNIVERSITY OF OTTAWA
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COVID-19/SARS-COV 2 PANDEMIC: CARDIAC ELECTROPHYSIOLOGY AND ARRHYTHMIA SERVICE OPERATIONAL PLAN

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UOHI COVID-19 PANDEMIC PLAN FOR THE ARRHYTHMIA SERVICE - OUTLINE

- Principles
- Inpatient procedures
- Ambulatory care
- Non-Invasive diagnostic services
- Efficient management of resources (material and human)

Based on CCS/CHRS/MOH Guidelines for Arrhythmia Services during COVID-19 Pandemic 2020

PRINCIPLES

- Create capacity to accommodate demand for hospital beds and human resources
- Implement healthcare distancing (health care personnel, patients and visitors) for protection of personnel
- Make evidence based clinical decisions (risk profile, natural history of disease, management options and anticipated length of stay)
- Document decision making process and due diligence in the care process
- Dynamic decision making process based on daily reassessment based on the trajectory of the Pandemic and communication between medical and operational leadership
- Minimize impact on mortality/morbidity of cardiac patients

PRINCIPLES

- Conserve and redistribute resources for efficient response to potential COVID infection surge
- The cases booked will be reviewed by the director of the arrhythmia service and/or designates and the triage team on a daily basis. The arrhythmia service director or designates and the triage team will attend the daily bed management meeting and may chose to alter the list according to the daily bed situation
- Regular triage by the director of the arrhythmia service and/or designates along with operational team (EP triage team and hospital administration) to ensure patients are informed, deferred cases are reviewed regularly and for documentation of deferred cases.
- Difficult cases will be discussed by the arrhythmia physician group and management decisions will be taken by consensus, while adhering to the CCS/CHRS/MOH, Ontario guidelines.

CATHETER ABLATION

- **Electrophysiology/Ablation Procedures:**
- UOHI has deferred all elective electrophysiology procedures for 3 weeks (starting16th March 2020)
- UOHI continues to perform urgent procedures that include:
- i. **Atrial fibrillation/Atrial Flutter/Atrial Tachycardia with ventricular pre-excitation** and rapid ventricular rates. Pre-excited SVT with syncope. SVT admitted to hospital not controlled using antiarrhythmic medications/intolerant of antiarrhythmic medications
- ii. **VT in ICD patients** presenting with shocks and/or sustained and in symptomatic, inpatients with VT. Especially, those refractory to antiarrhythmic therapy and with ventricular storm (> 3shocks in a 24-hour period)
- iii. **AF/AFL (including AV nodal ablation)** in patients with rapidly declining HF, particularly with a low ejection fraction, or requiring hospitalization
- Only two EP labs (EP lab 1 [Device implantation only] and EP lab 3 [Device Implantation and catheter ablation]) will be operational. The two EP labs are geographically separated by a closed lab. Two EP labs will be closed.

PACEMAKER/IMPLANTABLE LOOP RECORDER IMPLANTATION

- All elective pacemakers will be deferred for 3 weeks, with the exception of urgent procedures. These include:
- i. PPMs for complete heart block, high degree AV block, bradycardia causing syncope, bradycardia causing hospitalization
- ii. CRT-P for patients with frequent hospitalization or frequent ER visits for HF
- iii. Pack changes for patients with battery less than 3 months, prioritizing those who are pacing dependent or dependent on CRT for preventing decompensated HF
- iv. Infected pacemakers will undergo lead extraction
- Implantable loop recorder insertion in subjects with high risk cardiac syncope will continue. ILR explantations will be deferred until the PANDEMIC restrictions are in force.

ICD IMPLANTATION

- Implantation of Implantable Cardioverter Defibrillators (ICDs) and CRT ICDs (CRT-D) will be performed in the following patients:
- i. Implantation of ICDs for secondary prevention or primary prevention ICDs in subjects with urgent pacing indications or syncope
- ii. In addition primary prevention ICDs will be performed in high risk cases: These include CRT ICDs, patients with frequent non-sustained VT or frequent ventricular ectopy, and patients with high risk genetic and/or inherited conditions
- iii. Pack changes for patients with battery less than 3 months, prioritizing those who are pacing dependent, use their ICD for VT/VF therapies, or who are dependent on CRT for preventing decompensated HF
- Decision-making around selection of primary prevention ICD patient cases to be done should incorporate a shared decision-making approach, inclusive of patient and caregiver perspectives.

AMBULATORY DEVICE CLINIC

- UOHI will be scaling back device clinic activity and defer all routine device follow-ups.
- UOHI will be deferring wound checks and post implant checks unless the patient has-
- 1. Incision related complaints, hematoma, suspected wound infection.
- 2. Alerts from the device.
- 3. We plan to provide new implants with CARE LINK and LATITUDE monitoring devices if feasible to avoid a hospital visit.
- Visits for urgent issues such as shocks, VT therapy, battery depletion, and/or device alerts/failures will continue.
- UOHI will consider remote monitoring options, where possible, for routine or other non-urgent interrogations.

Based on CCS/CHRS/MOH Guidelines for Arrhythmia Services during COVID-19 Pandemic 2020

CARDIOVERSION SERVICES

- Cardioversion services will continue to avoid pressure on ED or other urgent care areas for performing this service – prioritization should be given to hospitalized patients or those at risk of ED visit.
- Patients that are minimally symptomatic and do not have high heart rates should be deferred on a case by case basis.
- Consideration should be given that these procedures often require anesthesia support and there is a risk (albeit minimal) of the procedure requiring intubation.

ARRHYTHMIA OUTPATIENT CLINICS

- All outpatient clinic visits will be cancelled
- Arrhythmia physicians will continue to triage outpatient referrals as per UOHI arrhythmia service guidelines (see next slide for triage codes)
- Telephone consults, Telemedicine consults or OTN consults will continue
- Michelle Gaudreau has created telephone billing codes for the duration of the PANDEMIC restrictions
- Urgent/emergent follow up visits are also to be performed using the above mentioned modalities.

ARRHYTHMIA SERVICE OUTPATIENT TRIAGE CODES

• CODE 1

1. Patients with structural heart disease (e.g., ejection fraction less than 40%, bundle branch block, hypertrophic cardiomyopathy, congenital heart disease, family history of sudden cardiac death, inherited heart disease, etc.) referred for symptoms, such as syncope, that could potentially be associated with a risk of morbidity or mortality.1
2. Patients referred for consideration of implantation an implantable cardioverter defibrillator (primary prevention) and/or a cardiac resynchronization therapy device.1
3. Patients with high risk features that could potentially be associated with a risk of morbidity or mortality (e.g. some Inherited Arrhythmia symptoms, Pre-excited AF etc.).
4. Second or third degree AV Block or alternating bundle branch block2
5. Highly Symptomatic sinus node dysfunction

• CODE 1.5

1. Documented arrhythmia (as primary problem) other than atrial fibrillation
2. Patients with atrial fibrillation who are potential candidates for AF ablation
3. Syncope without high risk features
4. Mildly symptomatic sinus node dysfunction
5. All patients with pre-excitation (regardless of symptoms) *
6. All patients with Brugada ECGs (regardless of symptoms) *
7. All patients with Long QT syndrome (regardless of symptoms)*

*pts with high risk features are code 1

• CODE 2

- Patients with uncomplicated atrial fibrillation* or palpation or dizziness.2
- *i.e. can be managed by a general cardiologist (e.g. permanent AF in elderly)

Based on CCS/CHRS/MOH Guidelines for Arrhythmia Services during COVID-19 Pandemic 2020

ARRHYTMIA MONITORING CENTRE CARE PLAN – COVID-19 PANDEMIC 2020

- Progressive slow down/reduction – all non-urgent booked appointments for next three weeks will be cancelled, particularly if patient is elderly.
- All inpatient Holters will continue to be performed.
- All inpatient telemetry will continue to be analyzed.
- Outpatient Urgent Holters will be booked as per criteria below:
    - Stroke/TIA in patient under 70
    - Syncope
    - New referral from UOHI Clinic marked as urgent
    - New or known arrhythmia with worrying features that an in-house physician deems urgent
- Cancelled booking slots will be closed. Patients will not be rebooked until directed by ordering physician. Patients will be told to consult with their referring physician to let them know that their Holter has been canceled and ask physicians to contact AMC at UOHI if they wish to perform an urgent Holter.
- All non-urgent or follow-up Holters currently booked until the end of March 2020 will be canceled via telephone. Patients will be instructed to inform their physician. If the ordering physician feels that the Holter should not be canceled, they will be requested to contact AMC.

ARRHYTMIA MONITORING CENTRE CARE PLAN – COVID-19 PANDEMIC 2020

- Quebec patients over the age of 70 are being asked by their province to self-isolate. Their Holters will be cancelled their booking slot closed.
- AWARE and COAST-AF (UOHI RCTs) patients will be mailed Cardiostat devices and assisted to self-apply by AMC technicians over the phone.
- AMC is setting up VPN remote access for analysis staff – they will come on site for Cardiostat analysis only once per week during slow down. They will work on a rotating basis if work load is reduced.
- Clerks will start rotating every other day on site.
- The number of hookup staff will be reduced from three daily to one as the volume decreases. There will always be one on-site hook up staff for urgent patients and inpatients and to process returned Holters.

ARRHYTHMIA SERVICE HUMAN RESOURCES

- Electrophysiology health human resources:
- With reduced arrhythmia service activity the arrhythmia service will consider the following:
- Physicians scheduled for activity on a given day (catheter ablation or device implant) will remain available in case urgent cases arise
- Physicians team members that are not on clinical duties will stay out of UOHI and work remotely
- A list of physicians available as standby in a surge situation and those unavailable for duties will be maintained by the arrhythmia service director and/or designates and the EP triage team
- If an urgent case arises, the decision to open a room for activity should be decided in conjunction with the team (EP triage office, Heart Rhythm Team leadership)
- Arrhythmia service clinical research staff are working remotely
- Administrative assistants have a rotating schedule with two administrative assistants working at UOHI each day and the others working remotely from home
- All team members have been provided VPN services to facilitate remote access
- Clinical research study recruitment and new study initiation activities have been put on hold

PANDEMIC PLANNING: DESIGNATED COVID EP LAB AND CARDIAC ANAESTHESIA SUPPORT

- During the COVID-19 pandemic we will be designating EP-Lab 4 for performing EP procedures (devices/ablations) on COVID-19 positive/suspected patients.
- This lab has the capacity to perform both ablations (with electroanatomical mapping) and devices. It is capable of performing procedures under general anaesthesia with mechanical ventilation.
- It is also geographically separated from all other EP labs.
- We will not be moving any equipment or supplies from this lab to the other EP labs.
- Device extractions will be performed in the Hybrid OR
- One cardiac anaesthesia colleague will be designated by the director of cardiac anaesthesiology to cover the two EP labs that are functional.
- A second cardiac anaesthesiologist will be on standby in the event there is a surge and both EP labs need cardiac anaesthesiology support

SUMMARY

- This guideline must be seen as fluid given the dynamic nature of the developing pandemic in Ontario and Canada.
- The intent is to avoid being overly proscriptive and above all to be supportive of physicians at UOHI and associated hospitals in the LHIN.
- Unique clinical situations are likely to arise that do not fit the UOHI guidelines and managing cardiologists and arrhythmia physicians will need to discuss such cases with the UOHI leadership (Arrhythmia service director, Chair of Cardiology, CEO and COO and other services such as Cardiac Anaesthesiology).

THANK YOU