PREVENTION OF ARRHYTHMIA DEVICE INFECTION TRIAL (PADIT) CLUSTER CROSSOVER STUDY

Published: 03-04-2014
Last updated: 20-04-2024

The purpose of the study is to test whether a centre-wide policy of incremental antibiotic therapy will reduce arrhythmia device infection in patients undergoing arrhythmia device procedures compared to a policy of conventional antibiotic…

Ethical review	Approved WMO
Status	Recruitment stopped
Health condition type	Bacterial infectious disorders
Study type	Interventional

Summary

ID

NL-OMON40692

Source
ToetsingOnline

Brief title
PADIT

Condition

- Bacterial infectious disorders

Synonym
prevention of pocket infection

Research involving
Human

Sponsors and support

Primary sponsor: Population Health Research Institute of McMaster University and Hamilton

Health Sciences Centre
Source(s) of monetary or material Support: grant PHRI;research instituut

Intervention

Keyword: Antibiotics, Arrhythmia, Cluster, Device Procedure, Infection

Outcome measures

Primary outcome

Hospitalization attributed to device infection.

Secondary outcome

1. Proven device infection not requiring surgical intervention (medically treated device infection).

2. Any treatment with antibiotics for suspected device infection.

3. Antibiotic-related adverse events including culture or antigen proven C. difficile infection.

4. Prolongation of hospitalization due to proven or suspected adverse events from the intervention.

5. Cost benefit analysis.

6. Rate of device/lead extraction 12 months post patient*s procedure (regardless of the cause).

Study description

Background summary

Infection is a potentially catastrophic consequence of device surgery, managed with device removal and lead extraction. Lead extraction is associated with major complications (0.5-2.4% mortality!).
Pocket infections are reported in up to 0.7% of primo implants and up to 1.7% in device replacements and lead repositioning.

Current AHA/ACC guidelines advocate a single dose of preoperative antibiotics in patients undergoing arrhythmia device implantation. These guidelines state: **primary prevention of device-related infection has not been examined in prospective randomized trials. This is due in
part to the infrequency of infection. Nevertheless primary prophylaxis is routinely given**.
There is however a rationale for using both cefazolin and vancomycin before the procedure to increase the level of prophylaxis. Most device infections are due to Gram-positive bacteria, mainly Coagulase-negative staphylococci (CoNS) and S.aureus that are frequently
resistant to beta-lactam antibiotics.

Study objective

The purpose of the study is to test whether a centre-wide policy of incremental antibiotic therapy will reduce arrhythmia device infection in patients undergoing arrhythmia device procedures compared to a policy of conventional antibiotic prophylaxis

Study design

A prospective, randomized, unblinded cluster crossover design will track the outcome of high infection risk patients undergoing an arrhythmia device procedure. Centres will be randomised to conventional vs. incremental antibiotic therapy for prevention of device infection, and will
cross over after 6 months to the alternate strategy. At one year centres will be re-randomised and then 6 months following, will cross over again. The crossover will mitigate the risk that changes in practice or in pathogens will contaminate results.
A wash in period of one week prior to each therapy will allow for the transition to the alternate therapy. As these therapies will be integrated into standard management, during each treatment period the randomized antibiotic therapy will be used on all patients undergoing a device implant
procedure at the centre.
Study outcomes will be adjudicated in a blinded fashion.

Intervention

CONVENTIONAL THERAPY
a single preoperative dose of intravenous Cefazolin 1-2g iv 60 minutes prior to skin incision.
In penicillin-allergic patients, Vancomycin will be used instead at a dose of 1-1.5g iv given over 60-90 minutes, 60-90 minutes prior to skin incision.

INCREMENTAL THERAPY
- Pre-procedure a single dose of both Cefazolin 1-2g iv 60 minutes prior to skin incision plus a single dose of Vancomycin 1-1.5g iv given over 60-90 minutes, 60-90 minutes prior to incision.
Because only a single dose of Vancomycin is administered, there is no need to adjust dosing in patients with renal failure.
Penicillin-allergic patients will only receive Vancomycin.

- intracavitary antibacterial wash with 1 gr cefazolin diluted in 50 ml sterile saline in a bowl on the sterile field, and injected into the pocket.

- postoperative antibiotic prescription to last for 2 days after the procedure. This can be either Cefalexin 500 mg PO TID OR Cephadroxil 1000 mg BID.
Penicillin-allergic patients will receive Clindamycin 150-300 mg TID.

Study burden and risks

All the antibiotics used as part of this research study are widely used in the Netherlands to prevent surgical infections and are generally considered to be low risk. However all antibiotics can sometimes have unwanted side effects. Vancomycin can cause a rash or reduced blood pressure (3-11%) however; this risk will be minimized by delivering the drug intravenously at a slow rate. Other side effects of the antibiotic include a temporary drop in white blood cells (1-2%), allergic rash (3%), fever (2%) and temporary reduction in kidney function. Cefazolin, Cephadroxil and Cephalexin can cause a rash in 1-7% of patients who receive them or diarrhea in 1-20%, which occasionally is severe. Should you be allergic to penicillin, clindamycin may be provided which can cause diarrhea in up to 20% of patients, which occasionally is severe. Occasionally, people may also develop a rash or temporary liver problems, usually with no symptoms.

Contacts

Public
Population Health Research Institute of McMaster University and Hamilton Health Sciences Centre

Birge Street 30
Hamilton ON L8L 0A6
CA
Scientific
Population Health Research Institute of McMaster University and Hamilton Health Sciences Centre

Birge Street 30
Hamilton ON L8L 0A6
CA

Trial sites

Listed location countries

Netherlands

Eligibility criteria

Age
Adults (18-64 years)
Elderly (65 years and older)

Inclusion criteria

1. Age > 18 years
2. Received one of the following procedures:
a) A second or subsequent procedure on the arrhythmia device pocket:
i. ICD, pacemaker, CRT-P, CRT-D generator and/or lead replacement
ii. Pocket or lead revision
iii. System upgrade (insertion or attempted insertion of leads)
b) New cardiac resynchronization therapy device implant (pacemaker or ICD)
3. Patient NOT known to have device infection at the time of surgery

Exclusion criteria

all patients not fulfilling inclusion criteria

Study design

Design

Study phase:	4
Study type:	Interventional
Intervention model:	Other
Allocation:	Randomized controlled trial
Masking:	Open (masking not used)
Control:	Active
Primary purpose:	Prevention

Recruitment

NL

Recruitment status:	Recruitment stopped
Start date (anticipated):	06-10-2014
Enrollment:	425
Type:	Actual

Medical products/devices used

Product type:	Medicine
Brand name:	Cefalexin
Generic name:	Cefalexin
Registration:	Yes - NL intended use
Product type:	Medicine
Brand name:	Cefazolin
Generic name:	Cefazolin
Registration:	Yes - NL intended use
Product type:	Medicine
Brand name:	clindamycin
Generic name:	clindamycin
Registration:	Yes - NL intended use
Product type:	Medicine
Brand name:	Vancomycin

Generic name:	Vancomycin
Registration:	Yes - NL intended use

Ethics review

Approved WMO Date:	03-04-2014
Application type:	First submission
Review commission:	METC Brabant (Tilburg)
Approved WMO Date:	10-06-2014
Application type:	First submission
Review commission:	METC Brabant (Tilburg)
Approved WMO Date:	01-10-2014
Application type:	Amendment
Review commission:	METC Brabant (Tilburg)
Approved WMO Date:	07-10-2014
Application type:	Amendment
Review commission:	METC Brabant (Tilburg)

Study registrations

Followed up by the following (possibly more current) registration

No registrations found.

Other (possibly less up-to-date) registrations in this register

No registrations found.

In other registers

Register	ID
EudraCT	EUCTR2014-000459-10-NL
ClinicalTrials.gov	NCT01628666
CCMO	NL47840.028.14