Telemonitoring of peripheral arterial disease in outpatient care with a smartphone App.

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Disclosure

Speaker’s name:
ARNEDO Gemma.

I have the following potential conflicts of interest to report:

- Consulting
- Employment in industry
- Stockholder of a healthcare company
- Owner of a healthcare company
- Other(s): Founder & CEO GC ACHOO s.l

- I do not have any potential conflict of interest
INTRODUCTION

CHRONIC DISEASE

DECREASES QUALITY OF LIFE

HIGH-RISK CARDIOVASCULAR EVENTS

PERIPHERAL ARTERIAL DISEASE

Prevalence: 3-10% >70y: 15-20%

INTRODUCTION

PERIPHERAL ARTERIAL DISEASE

Chronic Disease

Prevalence: 3-10%
>70y: 15-20%

Decreases Quality of Life

High-Risk Cardiovascular Events

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Chronic Disease

Decreases Quality of Life

High-Risk Cardiovascular Events
AIMS:

1. Maximum walking distance.
2. Pain-free walking distance.
3. ABI.
4. Correct online relation of worsening messages between patients and doctors.
AIMS:

1. **Increase**: Maximum walking distance. Pain-free walking distance. ABI.
2. Greater adherence to exercise. **Improve**: QoL and medical surveillance.
3. **Decrease No**: visits, emergencies and readmissions for PAD.
4. Suffer **less cardiovascular events, amputations and mortality.**
5. **Total cost saving** for PAD patients’ care.

Walking Advice
MATERIAL - METHODS:

1st Phase

PROSPECTIVE COHORT STUDY
N= 140

Inclusion Criteria
≥18y; PAD; ABI<0.9; BMT

Exclusion Criteria
<18y; No PAD; ABI >1,4; Unable to use smartphone.

Registry Data
Demographic data. Blood analysis. MWD. Pain-free distance. ABI. Worsening messages.

Enrolment
1m. Training App
Follow-up Period: 8 months
MATERIAL - METHODS:

1st Phase

PROSPECTIVE COHORT STUDY
N= 140

www.coachgoapp.com
MATERIAL - METHODS:

1st Phase

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PROSPECTIVE COHORT STUDY
N = 140

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Doctor

Patient

CoachGO!

Information

What is Peripheral Arterial Disease and why does it occur?

How to do Physical Exercise?

How does the application work?

Last walk: 31 May 2015
d: 794 m t:14:41 m

Let's walk

Introduce pressure

Information

How does the application work?

On the day you should measure your legs and arms pressure. How should I do it?

- Measure the pressure in both arms and legs using an automatic oscillometer, (a device that automatically measures arterial pressure), at home or at a public centre such as a chemist's.
- A drawing will show you where to place the cuff.

The screen of the oscillometer will display...
MATERIAL - METHODS:

1st Phase

PROSPECTIVE COHORT STUDY
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MATERIAL - METHODS:

1st Phase

PROSPECTIVE COHORT STUDY
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Patient
MATERIAL - METHODS:

1st Phase

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Patient
MATERIAL - METHODS:

1st Phase

PROSPECTIVE COHORT STUDY
N= 140

Follow-up Period: 8 months

Patient

Advice Message:
1-DECREASE\(^1\):
pain-free distance and/or
0.10 ABI during 2 weeks.

2-DECREASE\(^1\):
200m pain-free distance or
0.15 ABI.

Emergency Message:
1-Pain-free distance <50m\(^1\).
2-ABI <0.4\(^1\).

MATERIAL - METHODS:

1st Phase

PROSPECTIVE COHORT STUDY
N= 140

Patient Enrolment
1m. Training App
Follow-up Period: 8 months

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ALARM!
Exist a CLINICAL DETERIORATION of the patient Mary Smith

Must be evaluated, if patient needs a visit control in hospital.
Thank you very much!
MATERIAL - METHODS:

1\textsuperscript{st} Phase

PROSPECTIVE COHORT STUDY
N = 140

Follow-up Period: 8 months

REGISTRY DATA:

2m \quad 4m \quad 8m

Treadmill walking\textsuperscript{1,2}:
- No incline.
- Average speed: 3,2Km/h.

MATERIAL - METHODS:

1st Phase

2nd Phase

STATISTICS:

1-To calculate sample size:
Repeated measures ANOVA $[\alpha=0.05, \beta=0.2\text{(bilateral contrast)}]$, to detect a difference $\geq 5\text{m}$ between app measurement and the one carried out at the VL. SD: 20m, 10% losses.

2- To describe variables:
Continuous (Mean-SD), discrete (absolute-relative frequencies).

1-To compare:
1.1-Proportions between App and control groups: Chi-squared or Fisher’s tests.
1.2-Means: Student’s t-test or Wilcoxon rank-sum test.

2-To assess the effect of App: Multilevel regression model.
MATERIAL - METHODS:

2nd Phase

RANDOMIZED CONTROLLED TRIAL
N= 280 (1:1)

Inclusion Criteria
≥18y; PAD (FONTAINE II); ABI < 0.9; BMT.

Exclusion Criteria
<18y; No PAD; ABI ≥ 0.9/ >1.4; PAD (Fontaine III-IV);
Unable to use smartphone;
ICC NYHA III-IV. SEVERE CRI;
REVASCULARIZATION SURGERY.
RANDOMIZED CONTROLLED TRIAL
N = 280 (1:1)

2nd Phase
Enrolment
1m. Training App
Follow-up Period: 12 months

MATERIAL - METHODS:

A
WITH App
N = 140

B
WITHOUT App

Walking Advice
N = 140
MATERIAL - METHODS:

Randomized Controlled Trial
N= 280 (1:1)

2nd Phase

Enrolment
1m. Training App
Follow-up Period: 12 months

WITH App

Doctor
Patient

WITHOUT App

Walking Advice
MATERIAL - METHODS:

2nd Phase

RANDOMIZED CONTROLLED TRIAL
N= 280 (1:1)

Enrolment

Follow-up Period: 12 months

1m. Training App

REGISTRY DATA:

0m 3m 6m 9m 12m

1- Demographic data.
2- Blood analysis.
3- Maximum walking distance.
4- Pain-free distance.
5- Ankle-Brachial Index.
6- QoL for patient/doctor (QoL: (SF)-36\textsuperscript{3,4}/ satisfaction test).
7- No. of visits in hospital, emergencies, hospital readmissions.
8- Cost.
9- Morbidity; PAD (Fontaine III-IV); revascularization surgery; amputations; mortality.

Treadmill walking\textsuperscript{1,2}:
  - No incline.
  - Average speed: 3.2Km/h.

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THANK YOU FOR YOUR ATTENTION

CoachGo®

V1.2 is available in App Store & GooglePlay. V1.3 is presently being tested.

www.coachgoapp.com

If someone is interested to participate as a partner at H2020, please contact me:

garnedo@clinic.cat
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