Comparison of diagnosis efficacy of arrhythmias with cardiac telemetry versus Holter monitoring - Telemarc Project®


Department of Arrhythmias, Institute of Cardiology in Warsaw, Poland
Introduction

Optimizing diagnostics and therapy of arrhythmia and syncope events using intelligent telemetric solutions

TELEMetric ARrhythmia and synCope diagnostics

TELEMARC

• 14 hospitals in Poland
• 1 in Belgium
Telemarc Project

PROJECT GOAL

Optimizing diagnostics of arrhythmias aimed at reduction of diagnostic period and choice of the most efficient therapy method.

SUBJECT

Conducting examinations among children, teenagers and adults

HYPOTHESIS

1. Using innovative telemetric solutions leads to simplification and shortening of the diagnostic procedures, increase in its efficacy and cost effectiveness which results in more accurate diagnosis and subsequent therapy.

2. Project results will serve as the basis of new arrhythmia and syncope diagnostic procedures using cutting edge intelligent telemetric solutions.

3. Implementation and promotion of the method will help optimizing diagnostic and therapeutic procedures among menaced patients
Telemarc Project- overall results

1. *Assessment of method’s efficacy* (pathology detection), time-to-diagnosis and cost-effectiveness;

2. Preparation of diagnostic procedures and guidelines on selection of optimal therapeutic solutions for selected patient groups on the basis of statistical analysis’ results;

3. Preparation of characteristic features of patient groups for whom with regard to cost-effectiveness and time-to-diagnosis the best diagnostic method is:
   - *classical (holter)* diagnostics;
   - *event-Holter*;
   - automatic telemetric monitoring of full-disclosure ECG signal.
Study introduction

- Arrhythmias are the common problem and important cause of sudden cardiac deaths.
- Most common arrhythmia is atrial fibrillation reaching 10% in the old (>70 y) with large number of episodes being symptomless. The arrhythmia has a paroxysmal character with different occurrence rate. Conventional 24-hour Holter monitoring is the most popular diagnostic process in Poland and Europe.
- Long-term 14 days telemetry monitoring, using intelligent automated technology might shorten the time to diagnosis and has a potential of higher diagnosis accuracy.
AF XXI century epidemics

5.1 million People with AF 4.5 million in Europe

In the US the prevalence is projected to be more than doubled by 2050

Today 5.1m 2050 12.1m

One in Four adults aged over 40 develops AF in their lifetime

~2% General population affected by AF

~140,000,000 worldwide

References:
Aim

• The aim of the study was to compare the efficiency of diagnosis of arrhythmia detection in heart rhythm monitoring using Holter versus long-term cardiac telemetry.
Material and methods:

- Material consists of 648 randomized patients (Male- 258pts., Female-390pts) age 19-90 (avg 63) to up to 3 Holter monitoring groups versus up to 14-days cardiac telemetry.
- The data were collected and statistically analyzed.
Material and methods:
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- Transmission of entire ECG and all annotations
- Interpretation of each QRS
- Analysis results for each patient are reviewed by trained staff

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Material and methods:

- System automatically recognizes and qualifies the heart beats.
Pocket ECG report provides access to the results of long term monitoring with arrhythmia statistics.
Results

Diagnosis established in **telemetric** examination

- 98.4%
- 60.1%
- 15.8%
- 9.3%
- 1.6%

Diagnosis established in **Holter** examination

- 42.5%
- 57.5%
- 37.0%
- 4.1%
- 1.4%
• Quicker diagnosis time
• Less visits

2-3 Holter examinations (45 days) vs 4-5 days

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Conclusions

• Long term cardiac telemetry is a more efficient diagnostic tool to establish the diagnosis compared to Holter monitoring.
Conclusions

• Faster
  – Less visits

• More accurate
  – Less mistakes in case of monitoring problems

• Safer
  – Life threatening episodes detection
  – Better documentation for hospital treatment indications
  – Faster qualification to interventional treatment
Thank you!