Telemedicine solutions for management of patients with heart failure – A Systematic Review

Shadi Azam¹ – Master of Science /MPH- Public Health  
Jane Skov² – PhD in Health Sciences  
Unit for Thrombosis Research, Department of Public Health,  
University of Southern Denmark, Hospital of South West Denmark.
Content of the presentation

• Definition – Telemedicine, Heart failure
• Purpose and research questions
• Materials and method
• Main results
• Conclusion
Telemedicine

- Devices for electrocardiogram, blood pressure and body weight are connected via Bluetooth at patient’s home.
- Two telemedical centers.
- A home emergency call system.

Heart Failure (HF)

- Heart failure (HF) is a chronic and progressive condition. The heart muscle is unable to pump enough blood to meet the body's needs for blood and oxygen. Heart failure usually results in an enlarged heart.

- HF symptoms are: Dyspnea, persistent coughing or wheezing, edema, fatigue, nausea, confusion, and tachycardia.

➤ Patients are required constant physical, psychological, and medical monitorings. In addition, patient education and selfcare are important.
Purpose statement & research questions

• This systematic literature review presented an overview of studies that had used telemedicine solutions for management of patients with HF.

1. What are the most applied telemedicine solutions and required interventions for management of patients with HF?

2. What are the important clinical outcomes of telemedicine in patients with HF?

3. What are the most important limitations and challenges in telemedicine related researches?
Research Method
- Systematic literature review

- Literature search strategy:

  Databases
  - PubMed
  - Elsevier (Science Direct)
  - The Journal of Telemedicine & Telecare

  > Computerized literature search was conducted from 3 databases from year 2008 - 2014.

  > Through the primary search 70 articles were collected from the MeSh terms;

  "telemedicine", "telecare", and "telemonitoring" in conjugation with "heart failure"
Systematic literature review – Study selection

Inclusion criteria:

- English language
- Original article
- Keywords mentioned in the title
- Full text
- Randomized controlled trial (RCT)
- Published between 2008 - 2014
- Cochrane Collaborations’ tool for assessing risk of bias in RCTs above 4. (Maximum: 7, Minimum 0)
Results

- 9 studies
- Internet access in combination with telephon and mobile were the most applied solutions

- 6 studies - Change the rate of hospitalization and readmission
- 1 study self-care and adherence

- 8 studies
- physical monitoring and camera counseling were the most required interventions.

- 8 studies
- Internet access in combination with telephone and mobile were the most applied solutions

- 6 studies
- small sample size, short duration of intervention, loss to follow-up
Conclusion

• Integrating telecommunication technologies into the healthcare system.

• This study presented an overview of studies that had used telemedicine solutions for management of patients with HF.

• Telemedicine → recognized as feasible and low cost solutions for management of patients with HF.

• Further developments and corresponding research are required.
Reference


Thank you!