Dr Helena Dominguez

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Improving the management of heart failure with telemedicine

Research Objectives

The BRAHIT project highlights a successful collaboration between cardiologists and the primary health system regarding management of patients with heart failure in Rio de Janeiro.

Detail

Primary
Nordre Fasanvej 57, vej 4, opg. 3, stuen; DK-2000 Frederiksberg; Denmark

Secondary
Blegdamsvej 3B, Panum Building, 10.5; DK-2200 Copehagen

Bio
Helena Dominguez is Cardiologist, Consultant in Bispebjerg-Frederiksberg Hospital and Associate Professor in the department of Biomedicine, University of Copenhagen. Helena was born in Barcelona, Spain, graduated in Medicine in the Universitat Autònoma de Barcelona in 1988. Helena is the PI of several studies that she has initiated and main supervisor of several PhD programmes.

Funding
- Danida Fellowship Center, Danish Ministry of Foreign Office
- Innovation Fund Denmark

References

University of Copenhagen, Department of Biomedical Sciences. Brazilian Heart Insufficiency with Telemedicine (BRAHIT). [online] Available at: https://bmi.ku.dk/english/brahit. [Accessed 6/1/21]

Personal Response

What sparked this idea to create such a collaboration between primary care professionals and specialised cardiologists first in Denmark and now in Brazil?

"The REAFEL project was conceived with Anne Frølich, Professor of multi-disease and telemedicine. Prof Frølich provided a novel Danish sensor, C3 from Cortrium, for heart rhythm monitoring. The easy use of C3 in a GP setting was combined with a remote guide from the Cardiologist, as a new collaboration model: cardio-relay. Helena Dominguez presented this concept in a seminar organised by the University of Copenhagen and Innovation Center Denmark (Danish Foreign Office). Cardio-relay was envisaged as having great potential for the management of heart failure in remote patients in Brazil and BRAHIT took form, after receiving a grant from the Danida Fellowship Center."

Cortrium · inc · UFOP · Region H Bispebjerg og Frederiksberg Hospital · University of Copenhagen · visikon

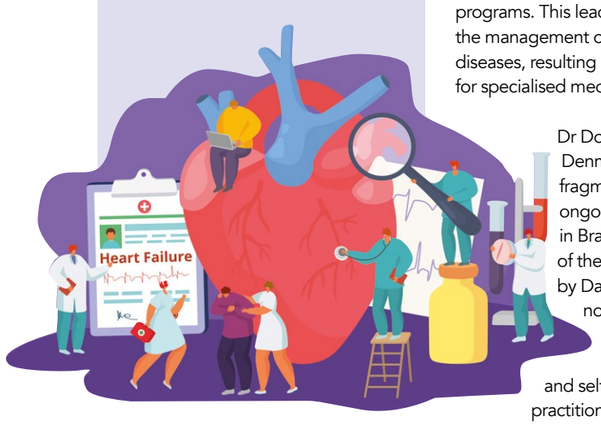
Improving the management of heart failure with telemedicine

Guaranteeing timely and good quality healthcare for all can be challenging. In countries like Denmark or Brazil, where health administration is fragmented, with federal authorities managing hospitals while municipalities manage primary care, the management of patients is very complicated. After developing a cross-sector collaboration model in Denmark, Dr Helena Dominguez, cardiologist in Bispebjerg-Frederiksberg Hospital and Associate Professor at the University of Copenhagen, is now working on a similar collaboration model using telemedicine in Brazil. The aim is to alleviate health inequality by facilitating access to healthcare.

Guaranteeing timely and good quality healthcare for all constitutes one of the biggest challenges for countries. Depending on how the healthcare system is organised, issues governments have to tackle can be incredibly challenging.

In Brazil, health administration is divided into planning areas, often formed by existing neighbourhoods, and the expansion of the primary healthcare system has occurred in a heterogeneous way. The heterogeneity in primary care is responsible for health inequality, making it more difficult for patients from socio-geographically challenged populations to access healthcare.

What makes it even more difficult is that health professionals in Brazil are managed by different administrations. This is the case for cardiology care in Rio de Janeiro where the federal authorities (Ministry of Health) are responsible for most of the highly specialised treatment in the hospitals, while municipalities administrate primary healthcare programs. This leads to fragmentation of the management of patients with heart diseases, resulting in longer waiting times for specialised medical treatment.



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Dr Dominguez works in Denmark where sector fragmentation is also an ongoing problem as, like in Brazil, the administration of the hospitals (managed by Danish regions) is not the same as in the primary sector (mainly municipalities and self-employed general practitioners). She first created a project known as REAFEL (Reaching the Frail Elderly) in Denmark, which consists of developing a cross-sector collaboration model between the patient, the patient's general practitioner (GP) and a cardiologist at the hospital. Now, she is working on a similar project in Brazil, named BRAHIT (Brazilian Heart Insufficiency with Telemedicine).

REAFEL AND BRAHIT

The collaboration model established in Denmark between the patient, the patient's GP and the cardiologist is dubbed the "cardio-relay model". The aim of REAFEL is to ease performing heart rhythm monitoring for patients who have difficulties attending repeated visits to the hospital-based outpatient clinic. Via telemedicine, the cardiologist can provide support to the GP for selecting patients with need for heart rhythm monitoring, plan further evaluations and guide therapeutic decisions. These patients can thereby receive support without the burden of attending multiple physical meetings at the cardiologist office.

The aim of BRAHIT in Brazil is to showcase the cardio-relay collaboration model between cardiologists and the primary health system with telemedicine regarding management of patients with heart failure in Rio de Janeiro. The hope is that it could be globalised to other chronic conditions in Brazil in the future.

COLLABORATIVE PARTNERS

BRAHIT requires the collaboration of many different partners.

Dr Dominguez is the coordinator. Her tasks include designing the telemedicine project and elaborating the research protocol for a clinical trial, administrating the budget, sub-contracting Danish companies for specific project tasks, coordinating the partners to achieve the targets, and coordinating outreach for the general population, for health policies proposals and for publication of scientific results.

The Danish team works with the Instituto Nacional de Cardiologia (INC), Rio de Janeiro, Brazil, a tertiary hospital for highly specialised treatment of patients with heart disease, and the Universidade Federal de Ouro Preto (UFOP), in the region of Minas Gerais, Brazil.

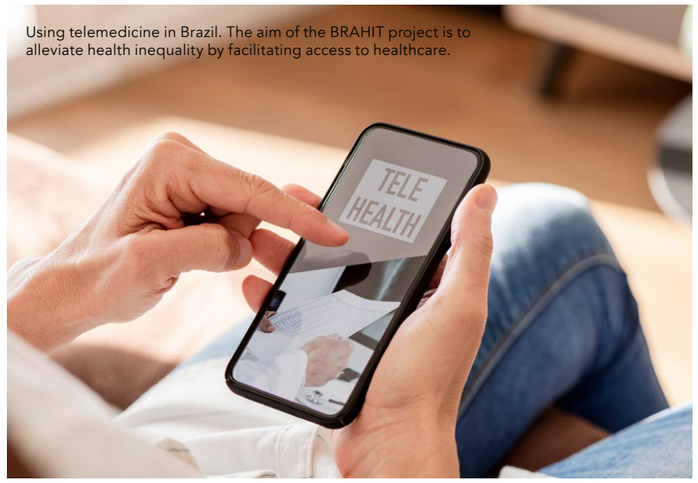
Three Danish companies are also involved. Visikon elaborates short films to help patients and caregivers to understand the causes and treatment of heart failure. Cortrium provides compact sensors that are easy for patients to use, and allow continuous monitoring of heart rhythm. Trifork employs their expertise on secure and smooth data exchange across sectors to store in a data-warehouse in BRAHIT, as a model for global use in Brazil. Data are made available to the patients, who can grant permission to healthcare givers to manage their treatment.

The project is funded by the Danida Research Center, from the Ministry of Foreign Office, and is conducted with supporting advice from the Danish Embassy in direct collaboration with the Ministry of Health in Brazil.

METHODS

BRAHIT aims to improve the management of heart failure in challenged populations. As in REAFEL, primary care doctors request support from the hospital cardiologists on a chat-like function for deciding on need for evaluation and for adjustment on medicine for heart failure.

Patients, who may be isolated in areas with difficult access, receive visits from "community agents", who are neighbours that have received a three-month training to gather observations on the patient's condition (pain, breathlessness, etc). These community agents make a focused report in the primary care clinic. Primary care doctors can then communicate with heart specialists at the INC using messaging and teleconferences as needed. Finally, patients receive heart medicines and educational guidance from their primary care doctors, delivered through help from the community agents.



Using telemedicine in Brazil. The aim of the BRAHIT project is to alleviate health inequality by facilitating access to healthcare.

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The aim of BRAHIT in Brazil is to showcase the cardio-relay collaboration model between cardiologists and the primary health system with telemedicine.

EVALUATING THE SUCCESS

To evaluate the success of BRAHIT, different methods will be applied, including a pilot phase and a clinical trial.

The general hypothesis is that the cardio-relay collaboration model, using telemedicine aid, can improve the quality of care management of chronic heart disease, and reach out to weak patients.

In the clinical trial, the first hypothesis is that the proportion of patients receiving correct heart medications for heart failure will increase from 30% to 60% in those managed according to the BRAHIT model. The second hypothesis is that use of the BRAHIT model will result in a reduction of readmissions for heart failure in 90 days after discharge from 50% (current proportion of readmissions) to 30%.

FOLLOW-UP

To quantify the use of target medications, a BRAHIT score was constructed. It is based on changes of clinical parameters (such as weight or medication doses), where the best condition is 0 point and increasing points indicate worsening. The components of the BRAHIT score at baseline, and after 6 and 12 months will give an estimate of the success of the project for heart failure management. The evaluation will also take into account additional parameters such as occurrence of fainting, hospital admission, occurrence of atrial fibrillation, cardiac death, and death of any cause (including unknown cause).

The experience of both patients and clinicians (cardiologists, primary care doctors and community agents) will be analysed through interviews.

TOWARDS GLOBALISING THE CARDIO-RELAY MODEL

Altogether, the current research addresses innovative solutions to alleviate inequality of health care in socio-geographically challenged populations. At the end of the project, Dr Dominguez aims to have demonstrated that management of heart failure with cardio-relay is a model that can be globalised to other conditions using telemedicine in Brazil.

For more information about the project visit the webinar: https://www.dropbox.com/s/je8hmfqyqm8aoel/Helena_Dominguez_1080p_05.mp4?dl=0

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