RENAL-FIT

Integrated Nutritional and Functional Care to Reduce Sarcopenia in Haemohaemodialysis Patients

5 Romanian haemohaemodialysis centres included in an observational study combining dietetic counselling, oral nutritional supplementation and functional assessment

Project team: Roxana Raluca Bârzu, Roxana Elena Călescu, Daniel Plăiașu

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Description of the initiative

- **Background / context**

Sarcopenia, defined as the progressive loss of skeletal muscle mass and function, is highly prevalent in patients with chronic kidney disease and reaches its highest frequency and severity in those undergoing haemohaemodialysis. The burden is particularly high in older patients, where sarcopenia overlaps with frailty, multimorbidity and functional decline. Despite its clinical importance, sarcopenia remains underdiagnosed and insufficiently managed in routine haemodialysis care, mostly in Romania.

Rationale for the initiative

Before starting the haemohaemodialysis session and alongside the regular laboratory tests recommended by nephrologists, each patient will be helped to complete the Strength, Assistance with walking, Rise from a chair, Climb stairs, Falls (SARC-F) questionnaire in order to screen for sarcopenia risk. Nurses and physiotherapists will perform handgrip dynamometry, calf circumference, Short Physical Performance Battery (SPPB), Timed Up and Go (TUG) test, bioelectrical impedance analysis (BIA), and Malnutrition Inflamation Score (MIS)**.** After all the data is collected, dietitians will provide nutritional information according to European Society of Clinical Nutrition and Metabolism (ESPEN) and Kidney Disease: Improving Global Outcomes (KDIGO)-based recommendations. Moreover, physiotherapists will establish realistic goals of implementing pshysical activity in this type of patients, as mentioned in KDIGO.

Objectives and scope

Primary objective: To demonstrate a clinically meaningful improvement in sarcopenia severity and quality of life following a multidisciplinary nutritional and functional intervention in older haemodialysis patients over 12 months, measured by changes from baseline to 6 and 12 months in SARC-F scores, muscle strength (handgrip), functional performance (SPPB, TUG), body composition (BIA) and KDQOL-36 scores. **Secondary objectives**: To improve muscle strength, body composition, nutritional status and quality of life, increase adherence to nutritional therapy, and reduce hospitalizations and adverse clinical outcomes

Planned activities & deliverables

- **Outline the key steps of the project management plan.**
- RENAL-FIT will include approximately 100 older adult haemohaemodialysis patients (≥65 years) recruited from five major public dialysis centres in Bucharest, monitored over a 12-month period. Screening for sarcopenia, nutritional counselling and increased physical activity will be the key intervention factors.
- **What are the concrete deliverables of the project?**

A standardized protocol specifically adapted for haemodialysis patients, including sarcopenia screening integrated into haemodialysis sessions, functional assessment performed by trained staff, structured nutritional intervention; Evidence on the impact of nutritional intervention, physical activity during haemodialysis and the effectiveness of renal-specific ONS administered post-haemodialysis; A practical, haemodialysis-specific care model that can be implemented in routine clinical practice.

- **What progress and achievements are possible in the next 12 and 24 months?**

Phase 1 (Months 0-3): we will select and confirm participating dialysis centres; train multidisciplinary Phase 1 (0-3 months): Site initiation, team training, protocol standardization. Phase 2 (3-12 months): Recruitment 100 patients ≥65 years; baseline screening (SARC-F, handgrip, SPPB, TUG,MIS, BIA); monthly dietetic counselling (8 sessions); renal-specific ONS after haemodialysis sessions. Phase 3 (12-18 months): Kidney Quality of life instrument (KDQOL-36), final assessments, data validation. Phase 4 (18-24 months): Statistical analysis, manuscript preparation, dissemination.

X **Please tick to confirm the PEN letter of endorsement is attached. Incomplete submissions will not be considered.**

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Resources & enablers

Describe personnel, financial needs, and disclose any other fundings in relation to the project (confirmed, planned or potential)

Personnel: Multidisciplinary team integrated into routine haemohaemodialysis care: Nephrologists (patient selection, clinical supervision), Dietitians (nutritional assessment, counselling, monitoring), Nurses (screening tools, patient monitoring), Physiotherapists (functional assessment), Statistician (data analysis).

Financial needs: Personnel 16,000€; ONS 16,000€; Statistical analysis+logistics+equipements 5,500€; Publication/dissemination 2,500€.

Specify how the grant will be spent

The grant will be used to:Support specific personnel (dietitians, physiotherapists) for 8 sessions per patient; Provide renal-specific oral nutritional supplements (ONS); Ensure statistical analysis and data processing; Cover publication and dissemination costs (peer-reviewed journals and conferences).

What factors will make the project successful?

RENAL-FIT will surely be an impact model for many countries where sarcopenia in haemodialysis patients is not approached carefully enough. We expect a clinically meaningful improvement in sarcopenia prevalence and quality of life over the intervention period.

Results, expected outcomes & impact

RENAL-FIT demonstrates that a structured, multidisciplinary intervention (dietetic counselling, ONS and tailored physical activity) can be integrated into routine haemodialysis care, leading to measurable improvements in sarcopenia, muscle function, nutritional status and quality of life.

The standardized workflow (SARC-F screening, functional assessment, targeted intervention) enables systematic identification and management of at-risk patients, addressing a major gap in current practice.

The intervention is expected to reduce hospitalizations, complications and healthcare utilization, with potential cost savings, while improving patient adherence, engagement and outcomes.

It will also support multidisciplinary training and contribute to the implementation of standardized nutritional care pathways in haemodialysis.

Is the project transferable to other care settings / geographical regions?

RENAL-FIT is highly transferable: simple, low-cost, standardized approach seamlessly integrating into routine haemohaemodialysis care using existing infrastructure.

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