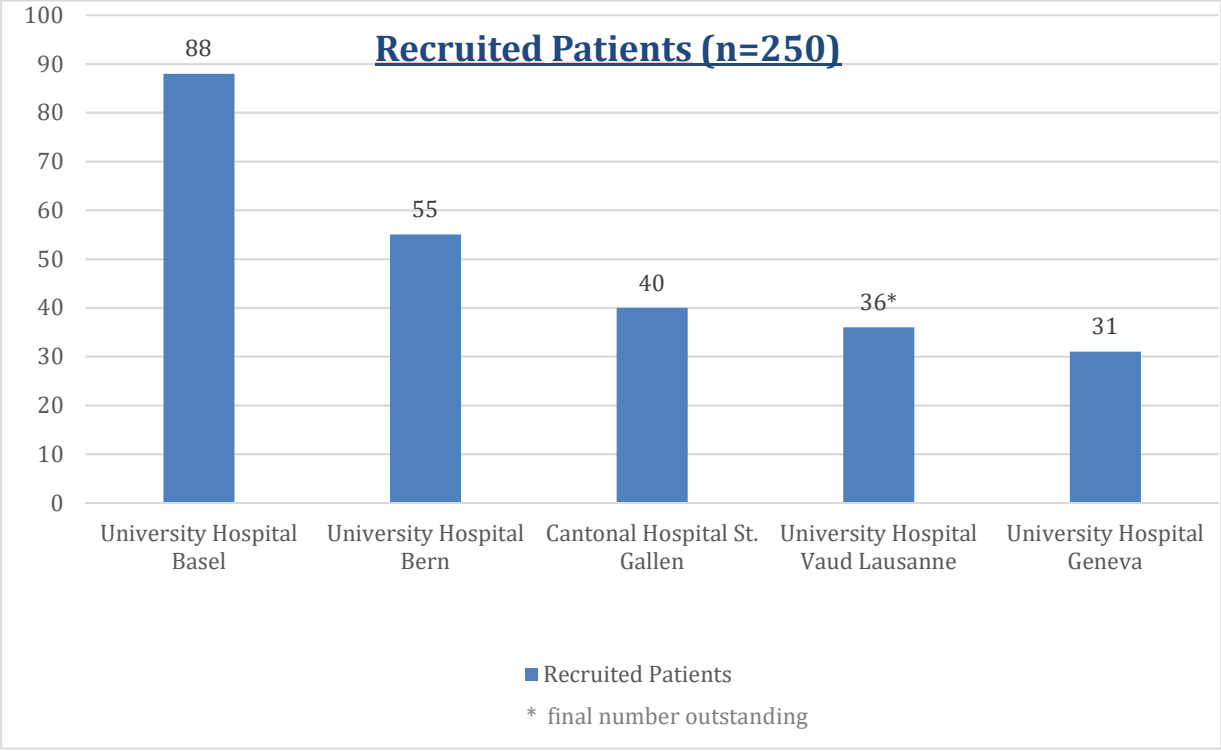
WHAT'S NEW WITH GERAS

July 2019

We have finally reached the target sample size of 250 GERAS participants and we want to thank all collaborators for their strong engagement and hard work!

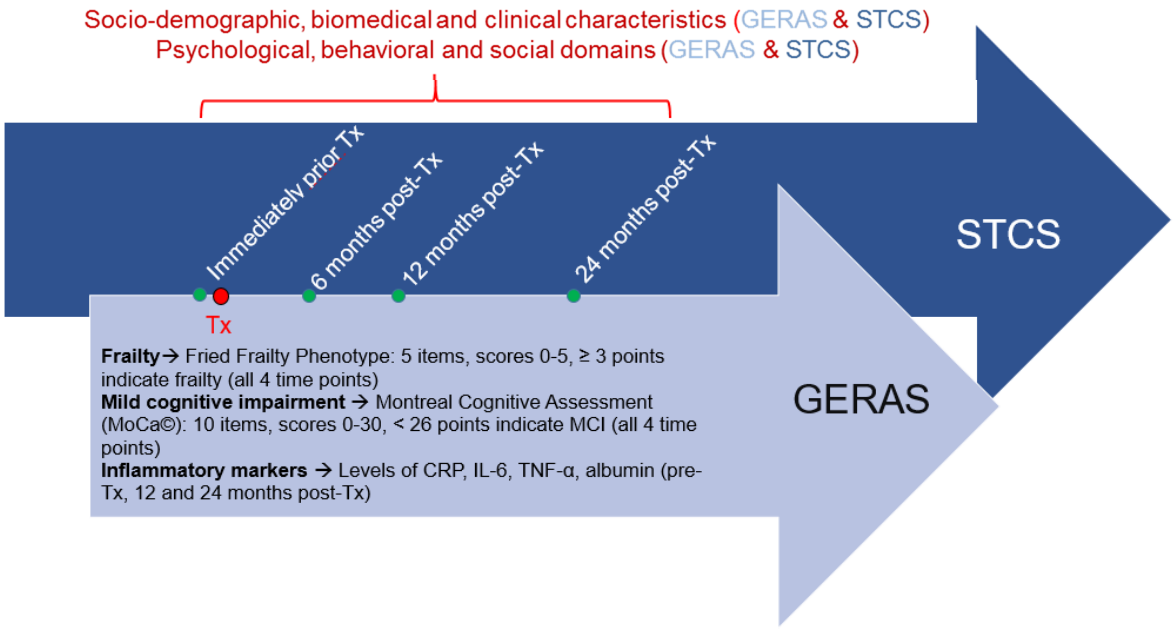
We have enrolled many new study participants within the recent months and we know that it will still require some efforts to complete all follow-up appointments.
The figure below represents the number of study participants that have been recruited at each center.



Why are we conducting the GERAS-Study?

As numbers of patients considered for kidney transplantation are increasing worldwide, the count of individuals aged ≥ 65 years of age at the time of transplantation is constantly growing. Age is a known significant factor influencing transplant outcomes. However, individuals with similar age can show diverse physical and cognitive conditions and chronological age alone is an inaccurate representation of patients' functional ability. Frailty, a better predictor of biological age, and mild cognitive impairment were both found to be strong independent predictors for adverse health outcomes and functional decline in kidney transplant recipients.

The growing unit of older kidney transplant recipients gives the Swiss transplant centers comprehensive opportunities to assess this cohort's development particularly since the aforementioned trend is continuing and the disparity of kidney graft disposition and demand is widening constantly. Thus exploring health outcome-predicting factors in the ageing kidney transplant-population reveals a growing research priority. The GERAS study is exploring frailty and mild cognitive impairment in adult kidney transplant recipients to enhance risk prediction for biomedical, psychosocial and health economic outcomes.



GERAS is an ongoing nationwide multi-center prospective cohort study nested in the Swiss Transplant Cohort Study. Currently, the GERAS study is being conducted at the University Hospitals Basel, Bern, Geneva, Lausanne and St. Gallen in collaboration with the Institute of Nursing Science of the University of Basel. We evaluate whether adult kidney transplant recipients present symptoms of physical frailty or mild cognitive impairment and collect data at time of transplantation, 6 months, 1 and 2 years post-transplantation. Primary data includes frailty using the Fried Frailty instrument, mild cognitive impairment by using the Montreal Cognitive Assessment as well as venous blood samples to assess inflammatory biomarkers.

Primary objectives of the GERAS study

1. To evaluate if frailty and mild cognitive impairment assessed immediately prior to KTx are predictive for clinical and psychosocial outcomes up to 2 years post-KTx. Primary outcomes: patient survival, health-related quality of life (HR-QOL), Length of Stay (LOS) Secondary outcomes: graft survival, acute rejections, healthcare utilization.
2. To explore if frailty and MCI assessed pre-KTx are predictive for healthcare and societal costs of KTx up to 2 years post-KTx from a societal perspective; and To assess and compare the QUALYs of adult KTx recipients who are non-frail, pre-frail/frail, and pre-frail/frail with MCI.
3. To assess the prevalence, evolution and interrelationships of frailty and mild cognitive impairment from immediately prior to KTx up to 2 years post-KTx.

Secondary objectives of the GERAS study

4. To examine the levels of selected inflammatory biomarkers (IL-6, TNF-α, albumin and CRP) in in relation with physical frailty status and MCI
   and
   To explore weather pre-KTx levels of selected inflammatory biomarkers are predictive for changes in frailty status (non-frail, pre-frail, frail) and MCI from pre-KTx up to 2 years post-KTx.

GERAS Preliminary Findings

Physical Frailty, Mild Cognitive Impairment and Length of stay in Adult Kidney Transplant Candidates at the Time of Transplantation in Switzerland: a multicenter, prospective cohort study.

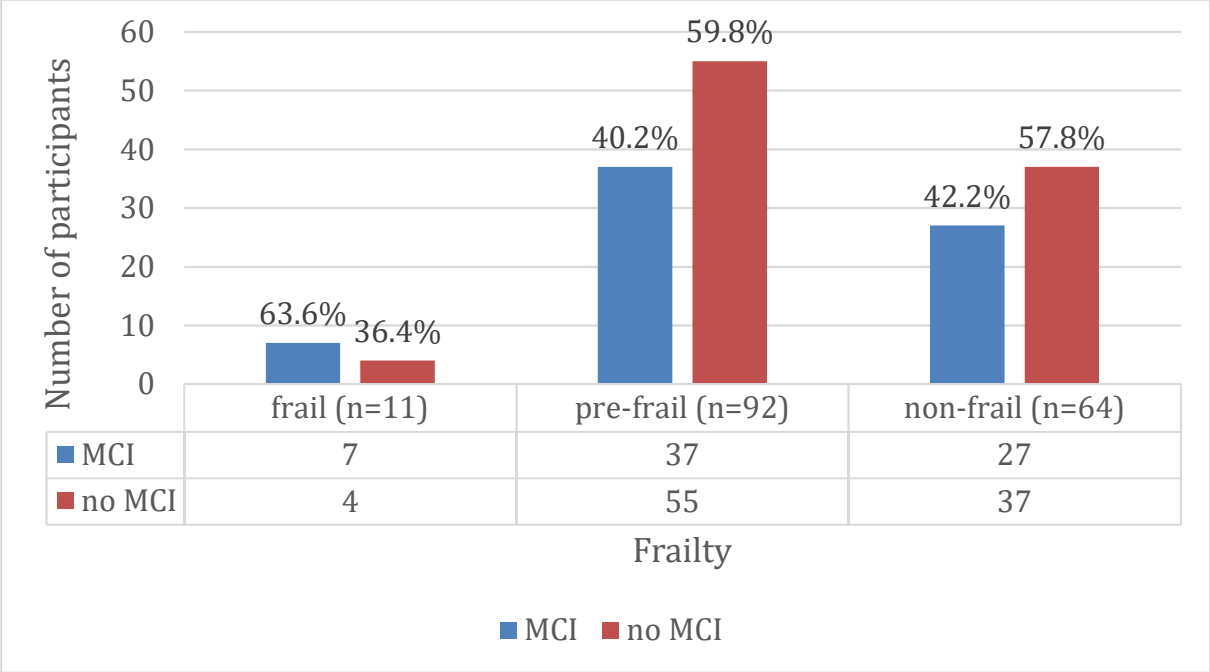
Background

Despite emerging evidence, there is limited information about the prevalence of physical frailty and mild cognitive impairment as well as their implication on length of stay in the kidney transplant population. The objective of this study was to jointly assess the prevalence of physical frailty and mild cognitive impairment at the time of transplantation as well as their implication on length of stay to understand their ability to predict negative health outcomes in kidney transplant recipients.

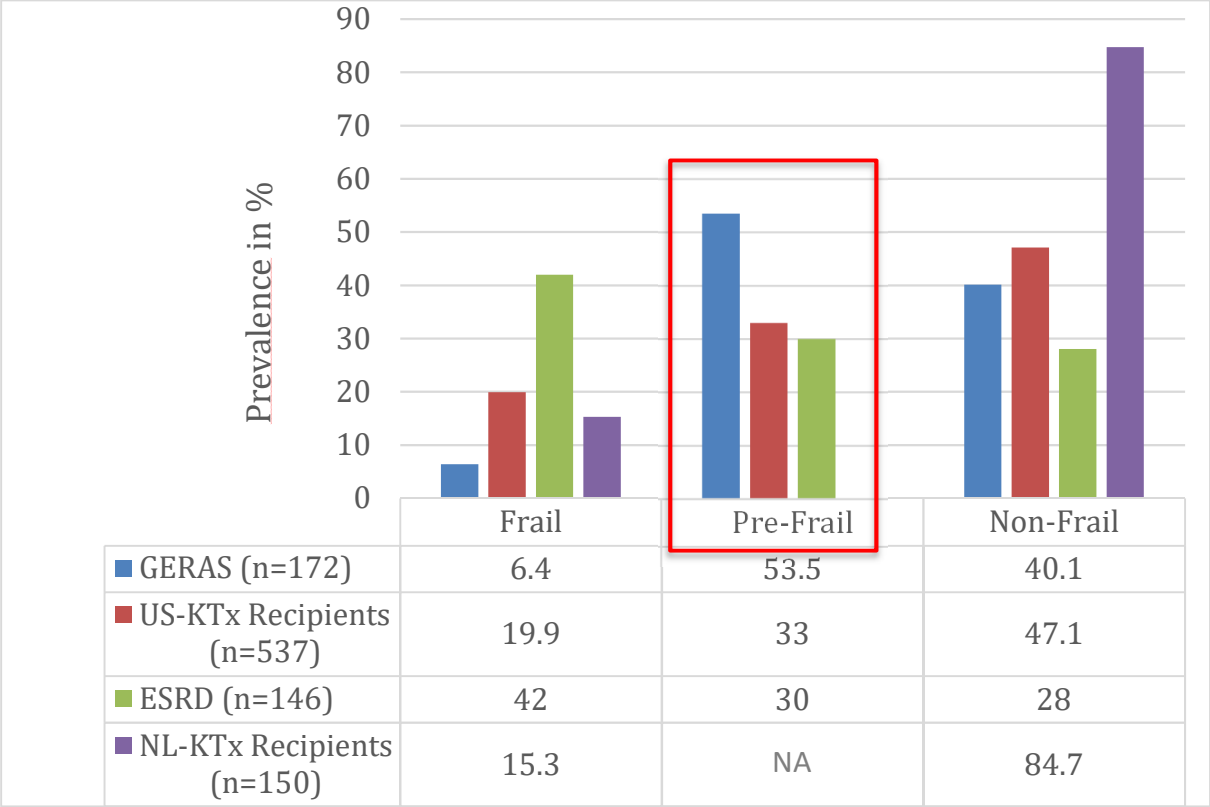
Preliminary Findings (n=172)

	Preliminary Results (n=172)
Age (years)	52.7 ±13.3 (range 20-75 with 22.7% aged ≥ 65)
Gender	30.8% female, 69.2% male
Physical Frail	6.4% (n=11)
Physical Pre-Frail	53.5% (n=92)
MCI	43.2% (n=71)
Median LOS (days)	13.6 ±10 (range 5-51)

The figure below displays the distribution of physical frailty and mild cognitive impairment immediately pre KTx in our study population.



GERAS sample: Higher prevalence of pre-frailty than US ESRD and KTx patients:

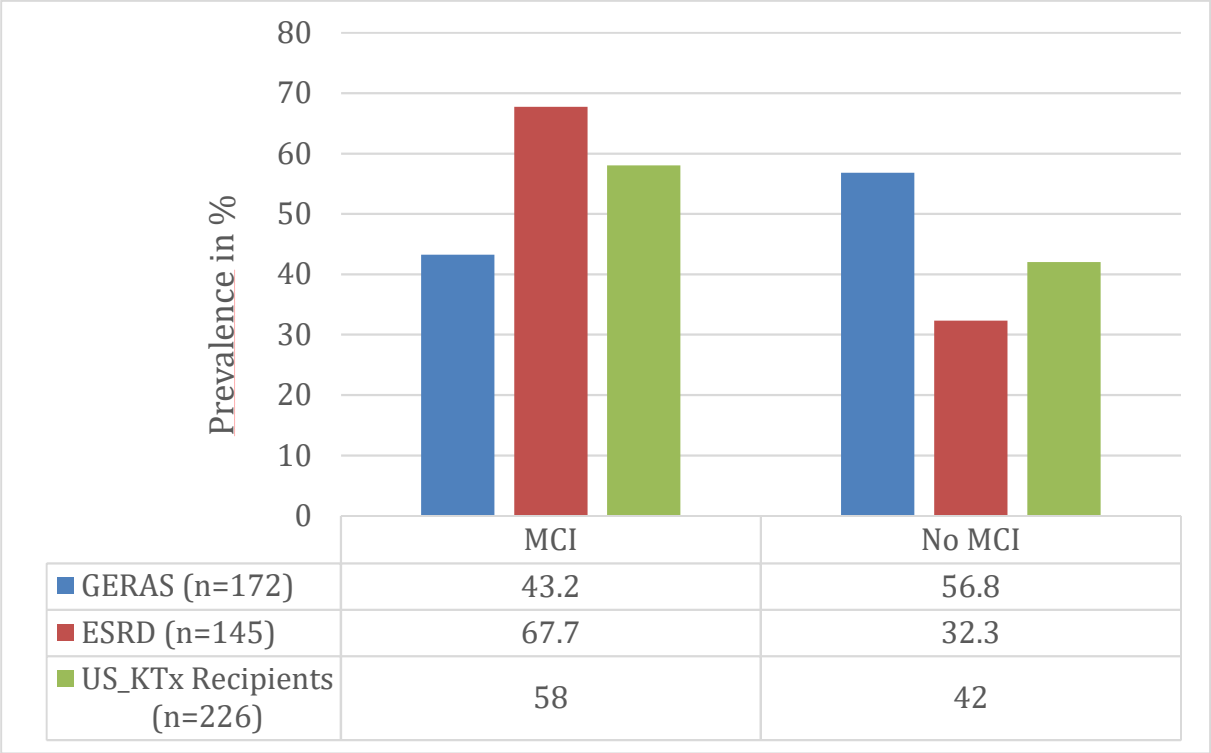


McAdams De Marco, J Am Geriatr Soc. Frailty as a novel predictor of mortality and hospitalization in individuals of all ages undergoing hemodialysis.

McAdams De Marco, Am J Transplant, 2015, Frailty and Mortality in Kidney Transplant Recipients.

Schopmeyer et al. Transplant International, 2019, Frailty has a significant influence on postoperative complications after kidney transplantation.

GERAS sample: High prevalence of MCI, coherent with other international studies:



	MCI	No MCI
GERAS (n=172)	43.2	56.8
ESRD (n=145)	67.7	32.3
US_KTx Recipients (n=226)	58	42

Gupta, BMC Nephrology, 2017, Prevalence and correlates of cognitive impairment in kidney transplant recipients.
Griva et al., Am J Kidney Dis, 2010, Cognitive impairment and 7-year mortality in dialysis patients.

Discussion

The GERAS sample shows a lower prevalence of physical frailty but a higher prevalence of pre-frailty compared to other international studies. The high prevalence of mild cognitive impairment is coherent with other studies. The median length of stay after KTx in Switzerland accounts 13.2 days according to Swiss DRG, Medcode 2019, which is concordant with the GERAS sample`s median length of stay. In the US length of stay is lower compared to our sample.

- ✓ Prevalence of pre-frail/frail individuals is high at the time of kidney transplantation.
- ✓ Prevalence of individuals with mild cognitive impairment is high at the time of kidney transplantation.
- ✓ Incorporating frailty screening into clinical practice would systematically identify pre-frail/frail individuals before transplantation – ultimately they are at risk for negative health outcomes.
- ✓ Pre-transplant screening for mild cognitive impairment would systematically identify individuals with mild cognitive impairment before transplantation – ultimately they are at risk for negative health outcomes.
- ✓ Frailty is a dynamic syndrome and patients could potentially benefit from prehabilitation.
- ✓ Longitudinal data is needed.

Next Steps

In Preparation

- Paper: Physical Frailty, Mild Cognitive Impairment and Length of Stay in Adult Kidney Transplant Candidates at the Time of Transplantation in Switzerland: a multicenter, prospective cohort study.
- In preparation of paper: Chronological age at time of kidney transplantation as a predictor for patient and graft survival until 5 years post-transplant: a bio-psychosocial competing risks survival analysis of the Swiss Transplant Cohort Study.

Project Steps

- Finalisation of recruitment (n=250) in July 2019
- July 2019 GERAS Update Newsletter with preliminary findings
- Data analysis plan in preparation
- Follow-up Assessments to be performed according to the study protocol

Team News

Cynthia Gschwind

My Name is Cynthia Gschwind, I am 28 years old and live in Allschwil, Switzerland.
In 2015, I received my Bachelor Degree in Physiotherapy. I was then travelling the world for one year, before I started to work at the Felix Platter Hospital in autumn 2016. I work mainly in the division of rehabilitation in neurological diseases and in the field of psychogeriatrics.
Since 2018 I am, besides still working as a physiotherapist, a student at the Bern University of Applied Science. I just finished the first year of my Masters of Science in Physiotherapy studies.
I joined the GERAS Team in May 2019 as a scientific assistant and I am very excited to gain first experiences in research.