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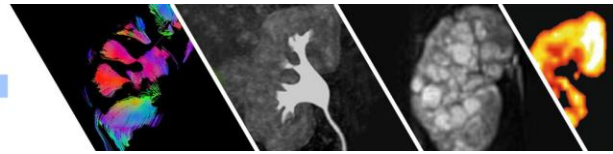


Working group 3 update

Anna Caroli & Nick Selby

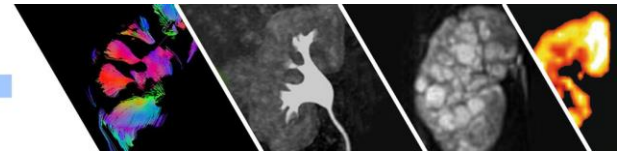
WG3 leads

ISTITUTO DI RICERCHE
FARMACOLOGICHE
MARIO NEGRI · IRCCS

3rd International Conference on Functional Renal Imaging
Nottingham, Oct 15-17th 2019

CKRi Centre for Kidney Research and innovation

University of Nottingham
UK | CHINA | MALAYSIA



WG3 – working group overview

WG3: aims to join up clinical sites working on renal MRI

WG3 leads: Anna Caroli & Nick Selby

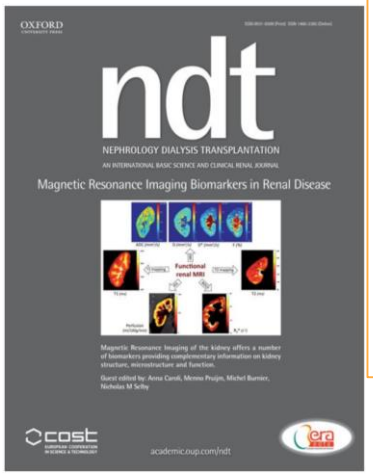
WG3 participants: n=85 people from 46 clinical/research centres/SMEs from Europe and beyond

Overall objective: demonstrate biological validity and clinical utility of renal MRI biomarkers; pave the way for clinical use of renal MRI by providing stronger evidence for their use in patients

WG3 achievements

Last year: series of papers on MRI biomarkers in renal disease

(**NDT special issue**, September 2018 - https://academic.oup.com/ndt/issue/33/suppl_2)



EDITORIALS

Functional magnetic resonance imaging of the kidneys: where do we stand? The perspective of the European COST Action PARENCHIMA

Anna Caroli; Menno Pruijm; Michel Burnier; Nicholas M Selby

Nephrology Dialysis Transplantation, Volume 33, Issue suppl_2, 1 September 2018, Pages ii1–ii3, https://doi.org/10.1093/ndt/gfy181

Extract ▾ View article

SPECIAL REPORT

Magnetic resonance imaging biomarkers for chronic kidney disease: a position paper from the European Cooperation in Science and Technology Action PARENCHIMA

Nicholas M Selby; Peter J Blankestijn; Peter Boor; Christian Combe; Kai-Uwe Eckardt ...

Nephrology Dialysis Transplantation, Volume 33, Issue suppl_2, 1 September 2018, Pages ii4–ii14, https://doi.org/10.1093/ndt/gfy152

Abstract ▾ View article

Arterial spin labelling MRI to measure renal perfusion: a systematic review and statement paper

Aghogho Odudu; Fabio Nery; Anita A Harteveld; Roger G Evans; Douglas Pendse ...

Nephrology Dialysis Transplantation, Volume 33, Issue suppl_2, 1 September 2018, Pages ii15–ii21, https://doi.org/10.1093/ndt/gfy180

Abstract ▾ View article Supplementary data

Renal blood oxygenation level-dependent magnetic resonance imaging to measure renal tissue oxygenation: a statement paper and systematic review

Menno Pruijm; Iosif A Mendichovszky; Per Liss; Patricia Van der Niepen; Stephen C Textor ...

Nephrology Dialysis Transplantation, Volume 33, Issue suppl_2, 1 September 2018, Pages ii22–ii28, https://doi.org/10.1093/ndt/gfy243

Abstract ▾ View article Supplementary data

Diffusion-weighted magnetic resonance imaging to assess diffuse renal pathology: a systematic review and statement paper

Anna Caroli; Moritz Schneider; Iris Friedli; Alexandra Ljimani; Sophie De Seigneux ...

Nephrology Dialysis Transplantation, Volume 33, Issue suppl_2, 1 September 2018, Pages ii29–ii40, https://doi.org/10.1093/ndt/gfy163

Abstract ▾ View article Supplementary data

Magnetic resonance imaging T1- and T2-mapping to assess renal structure and function: a systematic review and statement paper

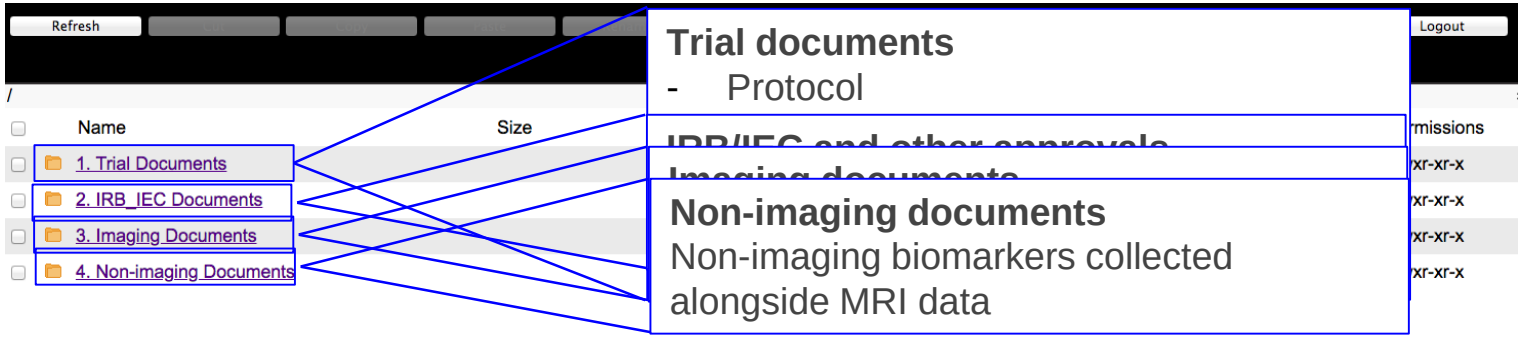
Marcos Wolf; Anneloes de Boer; Kanishka Sharma; Peter Boor; Tim Leiner ...

We increased the awareness within the nephrology community about potential of renal MRI

Clinical study document repository

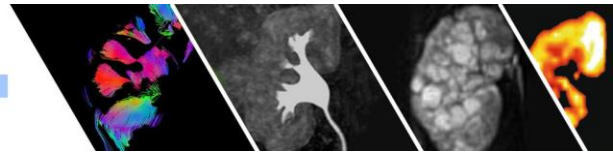
Collection of documents about ongoing/completed clinical studies involving renal MRI

Designed to speed up the set up of future multicentre clinical studies



- Upload of documents is voluntary and not compulsory
- Documents do not need to be translated
- Fixed naming convention proposed to make the repository searchable:

Country_Disease_Study_YY.MM.DD.V.VV_DocumentName



Study documentation repository

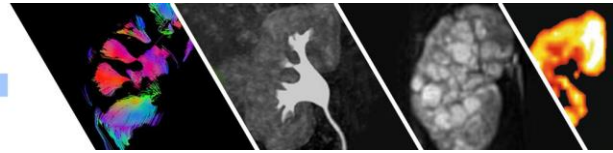
The repository is hosted on cloud

The repository is not public - access restricted to PARENCHIMA members willing to contribute/access

* Get in touch with repository coordinator to access the repository *

Contacts

Repository coordinator: Kristina Holm (Antaros Medical, SE)
kristina.holm@antarosmedical.com
Technical support: Marcos Wolf (Medical University of Vienna, AT)
wolf.marcos@gmail.com



Multicentre studies – barriers and possibilities

Major barriers to multicentre studies:

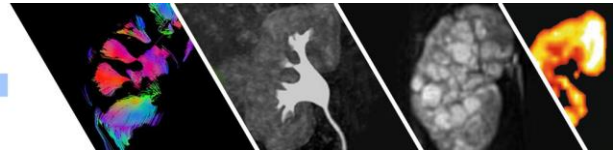
Standard MRI protocols needed → WG1 recommendations

Substantial funding required for large scale studies

Difficult to obtain funding that extends beyond single countries

Possible approaches

- Multinational grant funding
- Multicentre studies performed and funded within single countries
- Single center
- Modular approaches (co-ordinated approach for combining data from separate studies with similar designs)



Multicentre studies – possible approaches

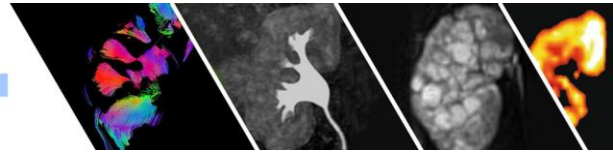
Multinational	Multicentre, within countries	Single centre
- RESPECT (IT/ES/DE/DK/UK; MRI standardisation to improve CKD management) - UMCG-MHH project (diagnostic potential of renal graft MRI for post-transplant complications)	- Swiss efforts (Geneve/Bern/Friburg; DWI in CKD) - UKRIN efforts (standardisation; CKD clinical study)	Several ongoing clinical studies (on ADPKD, transplant, CKD, etc.)
Not successful so far	Successful, potentially scalable	Successful, potentially scalable

PARENCHIMA progress review: "*… overcome the problem of large-scale clinical studies… (by) …setting up national studies with national funders in a similar way to analyze the data of different countries together*"

WG1 delivered recommendation papers → **standard MRI protocols are now available**
Study repository in place → **easier study set up**

Re-discuss modular approaches to overcome multicentre clinical study funding issues:

- Obtain funding and perform national-scale studies adopting similar study design and MRI protocols
- Pool data to generate larger evidence



Next step: inventory of ongoing clinical studies

List of ongoing clinical studies

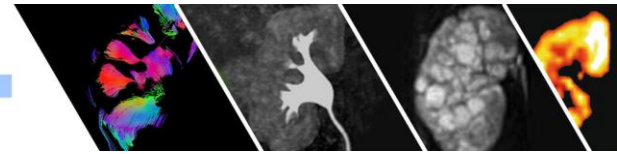
- both national and international
- Study title, Disease area, Timeline, Funding agency, Contact person

-> to coordinate the efforts and avoid possible overlap/competition

-> useful for planning complementary research

-> as a basis for creating possibly larger pooled cohorts in the future

* Start-off the list during the WG3 break-out session *



WG3 task forces

ADPKD task force

joins up WG3 participants working on MRI in ADPKD

Lead: Andrea Remuzzi (Bergamo, Italy)

Aim: Share expertise and secure funding to further validate MRI biomarkers in ADPKD

Transplantation task force

joins up WG3 participants working on MRI in renal transplantation

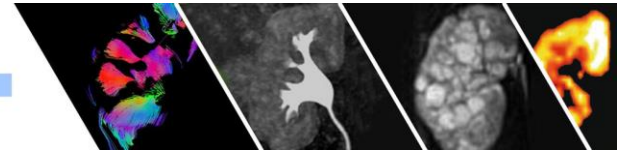
Leads: Cyril Moers/Ronald Borra (Groeningen, The Netherlands)

Aims: - Promote collaboration in the field of renal allograft MRI

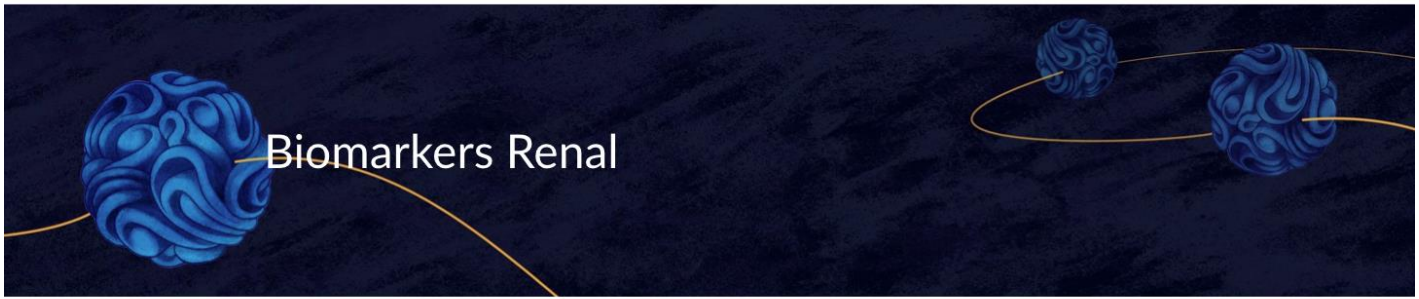
- Share retrospective data to explore the diagnostic potential of MRI for post-transplant complications
- Promote applications for assessing predictive and diagnostic potential of MRI sequences for pre-transplant (ex vivo) organ assessment and detecting and characterising post-transplant complications.

* Task forces update during the WG3 break out session *

ESR biomarker inventory



https://www.myesr.org/research/biomarkers-inventory/biomarkers-renal

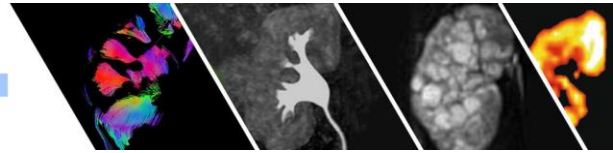


RENAL	MRI technique	Description of MRI technique	Pathophysiological process informed by MRI biomarker	Biomarker measured	Units of measurement
	Volumetry [1-4]	measured from T1- and/or T2-weighted structural images	Key measure in patients with ADPKD but may also be important in CKD	TKV Height-adjusted TKV Cortical volume Total cyst volume in ADPKD	mL mL/m mL mL
	Diffusion	True diffusion (D), pseudo-diffusion	Changes in renal micro- structure, oedema, or changes in	ADC [illegible] diffusion (D) [illegible]eudo-diffusion (D*) [illegible]wing fraction (F)	mm^2/s mm^2/s mm^2/s %

Which renal MRI biomarkers to recommend for clinical trials?

* we'll try and reach a consensus in the WG3 session *

This table was taken from the PARENCHIMA position paper



Break out WG3 session (16.30-18.30)

- Update from WG3 task forces (ADPKD/transplantation)

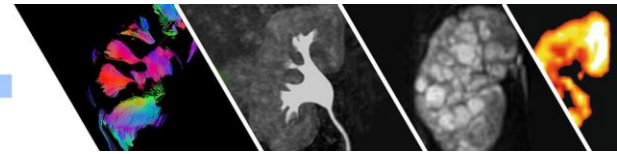
Progress summary, Short term objectives, Timeline

Anything to ask for (data/expertise)?

- Inventory of active clinical studies undertaken by COST members

- Discussion of proposed grants/funding strategies

- Discussion of EIBALL statement of renal MRI biomarkers to recommend for clinical trials



Acknowledgement

This presentation is based upon work from COST Action PARENCHIMA (CA16013), supported by COST (European Cooperation in Science and Technology).

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