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Can image based diagnostics become more objective? Professor Jarle Rørvik is asking this rhetorical question in a series of seminars taking place at the Department of Radiology, HUH this month. We give you a small glimpse into this window. Moreover, we have got a travel report from Elisabeth Kjelsvik Steinsvik, presenting news from the annual EUROSON Conference in Athens. Then we got inspired to interview Elisabeth as well.

Interview with physician Elisabeth K. Steinsvik

Background

Elisabeth K. Steinsvik was born in Ålesund. She moved to Bergen in 2002 and studied chemistry at UiB for two years. –The motivation for this study was basically to gain points for entering medical school, Elisabeth explains – however it was also useful as a fundament for my further education. I always wanted to work with people and to become a physician. During my early studies we lived at Fjellsiden and at Kronstad, so I know Bergen City pretty well. Later we have moved our family to Nesttun. Now, I feel like a half “ålesunder” and half “bergenser”, since most of my friends live here, but both my parents and parents-in-law live in Ålesund. My husband, Lars, is a registered nurse, working on a Master thesis in cardiac nursing. We got our first child in 2008 during my studies, and the second in 2012. I finished my medical studies in 2010. Then I worked for six months at Domkirkehjem – met nursing home, which was a nice first job as physician before I started my internship in 2011, here at Haukeland University Hospital. I got introduced to the research environment during my internship, and since I always have wanted to take a PhD degree, this was a perfect place for me to continue my career. Besides my work and family activities, I also love knitting, gardening and being outdoors, Elisabeth adds. Read more.

EuroSon 2015 – travel report by Elisabeth K. Steinsvik

The European Federation of Societies for Ultrasound in Medicine and Biology (EFSUMB) hold a conference every year with focus on Ultrasound. This year, the conference was arranged in the historical city of Athens. The Bergen Ultrasound group sent eight delegates, and Odd Helge Gilja, Spiros Kotopoulos, Kim Nylund and Roald F. Havre all gave lectures during the conference. PhD-candidates Hilde L. von Volkmann and Elisabeth K. Steinsvik and medical student Marcus Stangeland presented their research with e-posters. A definitive highlight of the week-end was the opening ceremony where our own Professor Odd Helge Gilja was elected President of EFSUMB. The ceremony was followed by an exciting lecture about medicine in the age of Hippocrates. The conference had many interesting lectures on several ultrasound-related topics, including medical physics. Next year, the conference will be arranged in Leipzig on October 26-29, and we hope that many of our colleagues will join us!

New President Odd Helge Gilja and former President Christoph Dietrich (right) in EUROSON.
Can image based diagnostics become more objective?

Professor Jarle Rørvik has established a seminar series at Department of Radiology together with the R&D Department, HUH and K1, UiB about quantitative imaging diagnostics. All the presentations are given in the library (Room H-112) at Department of Radiology, Sentralblokken, HUH. The seminars are open for MedViz members. The organizer asks questions like: “Do we need more advanced or automated analyses?” and “Can we improve the quality and the efficiency of our work by the aid of new technology and methods?” The answers are given at the following seminars:

1) Friday 13.11 (11.15-12.00) Quantitative imaging diagnostics – the future of radiology? (Professor Arvid Lundervold)
2) Thursday 19.11 (11.30-12.00) Quantification of single-kidney function and volume in living kidney donors using DCE-MRI (Lecturer Eli Eikefjord, Bergen University College)
3) Thursday 26.11 (11.15-12.00) Development and evaluation of quantitative image biomarkers – methods and statistical analyses I (Professor Geir Egil Eide, R&D Dept.)
4) Thursday 03.12 (11.15-12.00) Development and evaluation of quantitative image biomarkers – methods and statistical analyses II (Professor Geir Egil Eide, R&D Dept.)

Professor Jarle Rørvik and Professor Arvid Lundervold at the first seminar about image based diagnostics.

Professor Arvid Lundervold defined during the first seminar what we mean by quantitative imaging and how it is related to predictive, preventive, personalized and participative medicine (P4), before he gave examples from brain and kidney imaging. Arvid also showed the similarities between the imaging problems that both radiologists and traffic engineers are dealing with. Mathematics is the common key to merge the two cultures and is a statement that is clearly supported by MedViz. Professor Lundervold also gave several examples from automated multispectral analyses to classify different tissue types, both by supervised and unsupervised learning. He showed how multimodal MRI could give both structural and functional connectivity information from the brain, by applications of graph theory. Arvid concluded his talk by referring to the current paradigm change, represented by Computational medicine: Applying methods from engineering, mathematics and computational sciences to improve our understanding and treatment of human diseases.

Lecturer Eli Bjøvad Eikefjord presented during the second seminar her efforts to convert MR signals to quantitative measures of glomerular filtration rate (GFR) and renal blood flow (RBF) in the kidneys, with particular attention on donor kidneys. Her PhD work has particularly been focused along three directions:
1. Optimizing of MR sequences
2. Repeatability of the methods
3. Kidney function in donors with one remaining kidney

Related to point 3 above, Eli has compared the kidney function in 20 kidney donors with one remaining kidney with 20 healthy controls. Mrs. Eikefjord also compared iohexol “gold standard” GFR with MR measured GFR. The results showed a 65% increase in kidney volume and 54% increase in blood flow as a compensation in the remaining kidney in donor kidneys. The perfusion (per 100 ml tissue) was still similar. The increase in volume did mostly happen in the cortex. Kidney volume is therefore a potential surrogate measure of kidney function. Eli Eikefjord concluded that multispectral measurements of kidney function might give useful supplementary information in the future.

Now, we are looking forward to the final two more statistical oriented seminars in this series which are open for all interested in image based diagnostics.

Upcoming events


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