

## Case based teaching course

### Manifestations of Systemic Diseases on the Cardiovascular System: Diabetes

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Diabetes mellitus is one of the major causes for morbidity and mortality around the world. The risk of cardiovascular disease in male diabetics is 2–4 times higher than in the healthy population [1] while the risk of myocardial infarction in female diabetics is even 9.5 times higher than in women without diabetes [2].

Diabetes shows a combination of systemic manifestations as well as local disease with a large variety of complications from micro- and macroangiopathy and therefore is a diagnostic challenge to clinicians and radiologists.

In this course, participants will

1. learn how to design an optimal (whole body) MR protocol for a comprehensive morphologic and functional assessment of typical cardiovascular complications in patients with diabetes including
  - a. brain imaging
  - b. cardiac function assessment
  - c. delayed contrast enhancement (DCE) imaging
  - d. 3D- MR-angiography (MRA) of the carotids and cerebral vessels, the abdominal aorta including mesenteric and renal arteries, the thighs, the calves and pedal arteries
  - e. foot imaging
2. be shown cases with typical findings of MRI and MRA in patients with diabetes:
  - a. cerebrovascular disease
  - b. acute and chronic ischemic brain lesions, cerebral microbleeds
  - c. myocardial infarction
  - d. peripheral artery disease
  - e. neuropathic foot disease / osteomyelitis.
3. learn how to read and interpret these cases and demonstrate the relevant findings to the referring clinician (diabetologist, vascular surgeon etc.).

Upon completion of the course, participants will

1. be aware that diabetes as a metabolic disorder with local and systemic manifestations and vascular multimorbidity is a disease that needs sophisticated workup with a specific protocol
2. understand that whole body MRI/MRA (using a disease specific protocol) as a single-step comprehensive diagnostic algorithm offers the possibility for a non-invasive, one-step-evaluation of the brain, the heart, the arterial vessels and the feet with high image quality and accuracy
3. be able to interpret MR images from diabetic patients, recognize the typical cardiovascular complications and demonstrate these findings to the referring clinicians.

References:

1. International Diabetes Federation. *www.idf.org*, 2007
2. American Diabetes Association: Diabetes News. *www.diabetes.org*, 2007