Bijlage 2
Blueprint rTMS Training courses: Focus clinical application

Aanbieders van rTMS-cursussen kunnen deze aan de hersenstimulatie-stichting voorleggen ter certificatie. Cursussen zullen beoordeeld worden aan de hand van onderliggende "Blueprint Courses".

Een cursus moet voldoen aan de volgende criteria om in aanmerking te komen voor certificatie van de stichting. Voorwaarde voor de cursus: commerciële onafhankelijkheid of oefening op 2 apparaten van verschillende type.

'P' betekent dat dit onderwerpen zijn voor de rTMS-professional.
'T' betekent dat dit onderwerpen zijn voor de rTMS-technician.

1. Orientation to rTMS (P & T)
   a. History and development of rTMS
      Pioneers and seminal studies, e.g. George et al. 2010; O'Reardon et al. 2007; Blumberger et al., 2019.
   b. Place of rTMS in broader neuromodulation context (tDCS, tACS; DBS; neurofeedback)
2. Safety (P & T)
   a. Terminology, ITI, Train, stimulation frequency
   b. Motor Threshold (MT), Motor Evoked Potential (MEP) and factors that influence MT
   c. Side effects, pregnancy, exclusion criteria.
   d. Operator risks
   e. Rossi et al. guidelines (or more recent update if available)
3. Ethics (P & T)
   a. Weighing evidence or lack of evidence for effect/side-effect (e.g. pregnancy, adolsecents)
   b. Experimental targets and/or treatments, when?
   c. Adhering to evidence based guidelines? Scope of practice.
4. Equipment, stimulation parameters and working mechanism (P & T)
   a. Faraday's law
   b. From discharge (Ampere's and Tesla) to rate of change and induced electrical field.
   c. Types of equipment and coils (figure-8; double cone coil; iron core coil; dTMS)
   d. Mono-phasic vs. Bi-phasic rTMS; Magnetic field of circular vs. figure-8 coil
   e. Coventional TMS (low vs. high-frequency) and Patterned TMS (e.g. theta-burst)
   f. Coil orientation, angular sensitivity
   g. Single pulse TMS; paired pulse TMS and rTMS
   h. Number of pulses per session vs. accelerated rTMS
5. Coil placement (P & T)
   a. 5- and 6-cm. rules
   b. Beam-F3 method
   c. Neuronavigation
   d. New developments: E.g. Connectivity based (e.g. Fox & Pascual-Leone); Neuro-Cardiac-Guided TMS (Iseger et al.); BioTypes (Drysdale et al)

6. Clinical applications (P & abbreviated T)
    a. MDD, rTMS vs. ECT (role of psychotic MDD)
    b. DLPFC (HF, LF and iTBS) TMS as primary MDD protocol
    c. TRD: Relative attribution of efficacy/effectiveness in TRD vs. non-TRD
    d. Durability and maintenance treatment
    e. Association stimulation parameters and clinical efficacy (number pulses; number days; %MT; pulses per day)
    f. Other disorders: Dependent on course and/or audience (e.g. psychiatric vs. neurological)
    g. Evidence level in line with Lefaucheur et al. guidelines (or more up-to-date versions when available).
    h. Multicentre RCT's and meta-analysis
    i. Clinical embedding in practice (combining psychotherapy/CBT; pharmacotherapy)
7. rTMS and neuroscience (P & abbreviated T)
    a. HF-rTMS vs. LF-rTMS as increasing vs. decreasing rCBF as old-notion
    b. rTMS as network-normalization; network resynchronization effects.
    c. MDD network: DLPFC – sgACC/rACC
8. Future developments and applications (P)
    a. New rTMS indications still considered experimental
    b. Alternative coil locations, e.g. OFC TMS in MDD; DMPFC TMS.
    c. Predicting TMS treatment response 1) clinical; 2) neuroimaging and 3) other.
9. Hands-on demonstration (P & T)
    a. Tenminste 2 verschillende typen rTMS apparatuur (onafhankelijkheid)
    b. Vinden van de MT
    c. Het correct plaatsen van de spoel en toepassen lokalisatie methode (5-/6-cm. Or BeamF3)
    d. Oriëntatie op protocol configureren/aanzetten.
10. Hands-on practice (T)
    a. Technical Introduction (explain all hardware and software components used)
    b. Safety Checks and Screening (best practices to ensure general safe use of TMS)
    c. Motor Hotspot Localization
    d. Motor Threshold Determination
    e. Individual Practice and Feedback
    f. State-Dependence of Motor Threshold (rest versus active MT)
    g. Excitability beyond Motor Cortex (Phosphenes, speech arrest)
    h. In-Depth Training of Depression Therapy (role play of entire process)
    i. Implementing Repetitive and Patterned TMS Protocols (programming protocols by flexibly changing parameters)
    j. Translating TMS Parameters into Practical Procedures
    k. Quantifying Motor Responses with MEPs
    l. TMS Coil Positioning in Clinical Practice
    m. Using various coil positioning approaches including 6-6-7 cm rule, F3, Beam F3, MRI-Guided Neuronavigation
11. Voorlichting en communicatie (P & T)
    a. Patiënt: Veiligheid, procedure, bijwerkingen.
    b. Marketing