

[Psychiatry] Antidepressant Efficacy and Mechanisms of Newer Forms of Brain Stimulation

新型態腦神經刺激的抗鬱療效及機轉

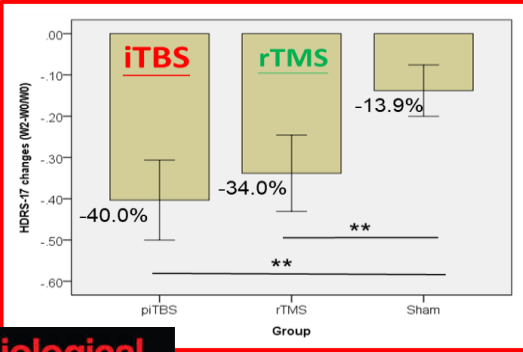
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◆ First sham-controlled study confirmed that iTBS has non-inferior antidepressant efficacy to 10-Hz rTMS



Biological Psychiatry

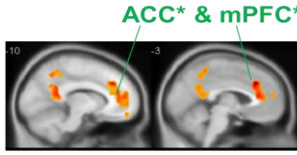
(CT Li et al., Biological Psychiatry, 2020)

◆ Prefrontal TBS mainly modulates the fronto-cingulate circuit, but no direct effects on the targeting DLPFC

Study design: ¹⁸F-FDG PET before vs. after TBS
cTBS or iTBS or sham x 2 weeks

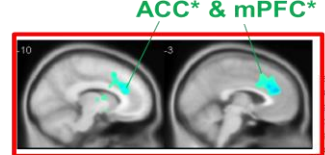
◆ cTBS at R. DLPFC

- ✓ Increases of medial PFC, ACC
- ✓ Decreases of R temporal cortex
- ✓ No findings in bil. DLPFC



◆ iTBS at L. DLPFC

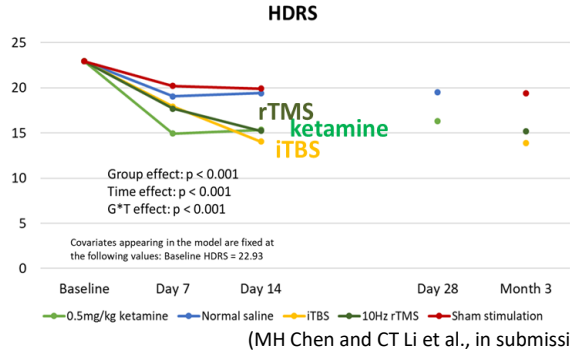
- ✓ Decreases of medial PFC, ACC
- ✓ Increases of bil. temporal cortex
- ✓ No findings in bil. DLPFC



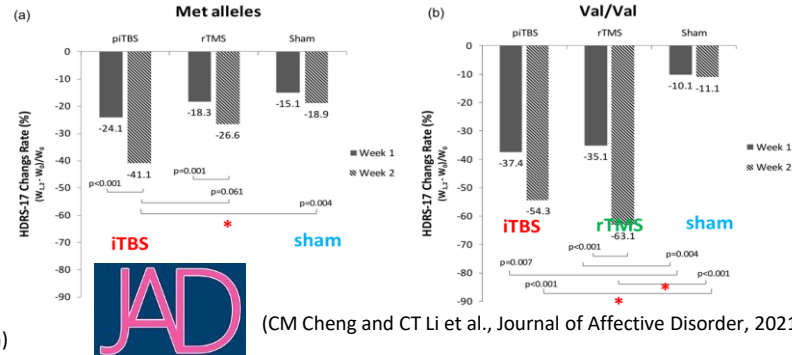
BRAIN STIMULATION

(CT Li et al., Brain stimulation, 2018)

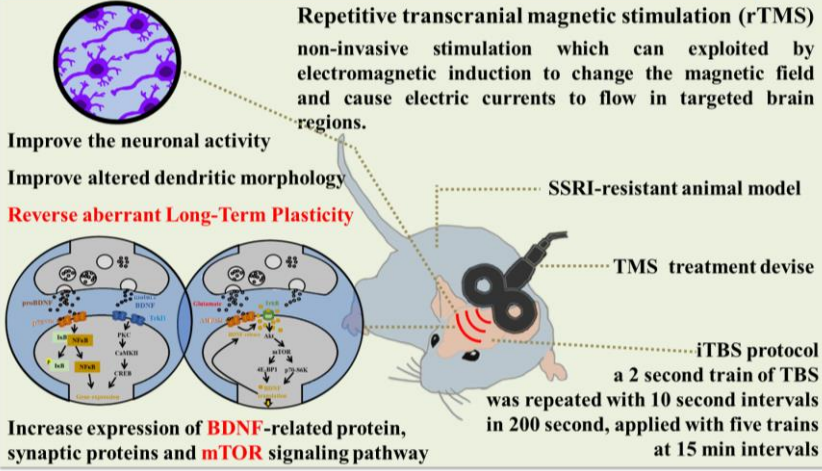
◆ iTBS could have similar antidepressant effects as low-dose ketamine for treating TRD



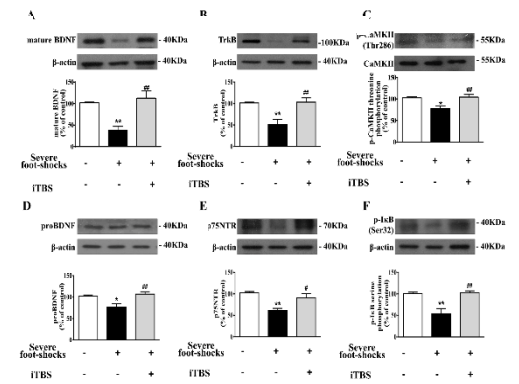
◆ Clinical trial showed BDNF genotypes have significant impacts on antidepressants effects of brain stimulation, including iTBS



How iTBS improve depression in SSRI-resistant animal model



◆ Animal study showed BDNF is critically involved in the mechanisms of iTBS



OXFORD ACADEMIC
Cerebral Cortex