Depression is a prevalent psychiatric disorder that affects over 350 million people globally. Convulsive therapy is a method that is used to alleviate symptoms of neuropsychiatric disorders through the induction of an electrical current. The use of both electroconvulsive stimulation (ECS) and transcranial magnetic stimulation (TMS) is effective at reducing severe symptoms of depression that do not respond to traditional drug therapies. The difference between the two, is that the ECS delivers direct electrical currents through the brain. Whereas, TMS is spatially controlled to target specific areas of the brain and create a magnetic field to stimulate the nerve cells. While convulsive treatments potently improve symptoms of depression, the underlying neuronal mechanisms are not well-defined. To study the effects of ECS and TMS, we focused on the hippocampus. To assess the effects of convulsive treatments on hippocampal neurogenesis, we examined the timeline of therapy induced neurogenesis in a mouse model. A single ECS, Repetitive transcranial magnetic stimulation (rTMS), or intermittent Theta Burst Stimulation (iTBS). After 1, 3, or 7 days, neural markers were examined to determine the effects of each treatment. The data indicates that ECS increases neurogenesis immediately then declines at days 3 and 7. iTBS is similar to ECS where neurogenesis is increased immediately after treatment. In contrast, rTMS did not cause changes in neurogenesis. Further analyses are underway to determine chronic neurostimulation effects on neurogenesis and morphology of the newborn neurons that are induced by the stimulations.

Themes:

Check (highlight) the most applicable theme according to the abstract.

- ☐ Innovation and Technology
- ☐ Health and Wellness
- ☐ Culture and Society
- ☐ Sustainability and Conservation

Comments: This is a very interesting study. A few sentences need to be clarified, as indicated, but all elements of a good abstract were included.