



TMS

TRANSCRANIAL
MAGNETIC STIMULATION

THE TRUE SPECIALIST IN TMS THERAPY

Excellence in Brain Stimulation & Rehabilitation Technology



REMED
Rehabilitation Medical Company

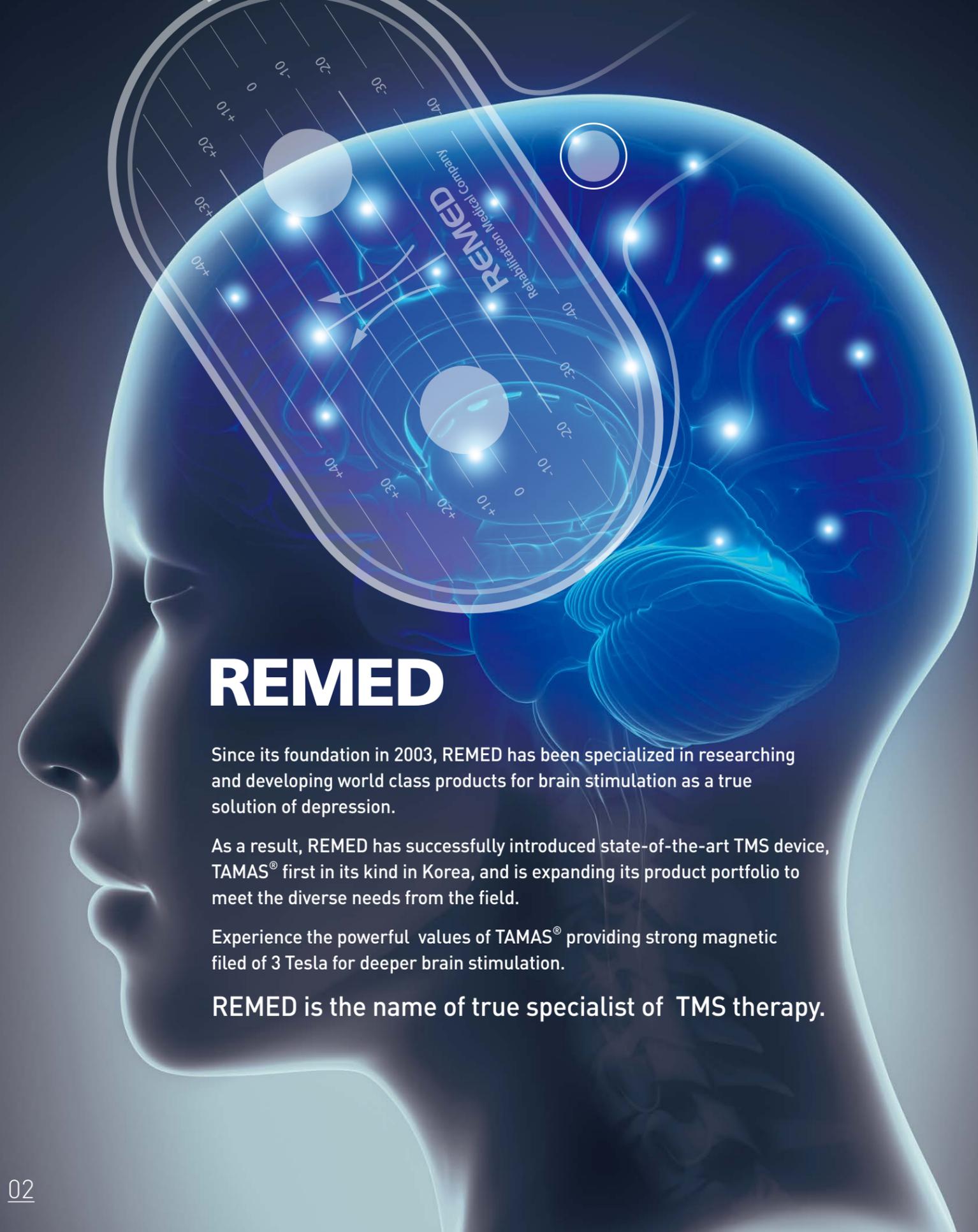
WHEN YOUR PATIENTS ARE SUFFERING FROM



REMED PROVIDES TRUE SOLUTION FOR THEM AS GENUINE SPECIALIST OF TMS THERAPY.

REMED

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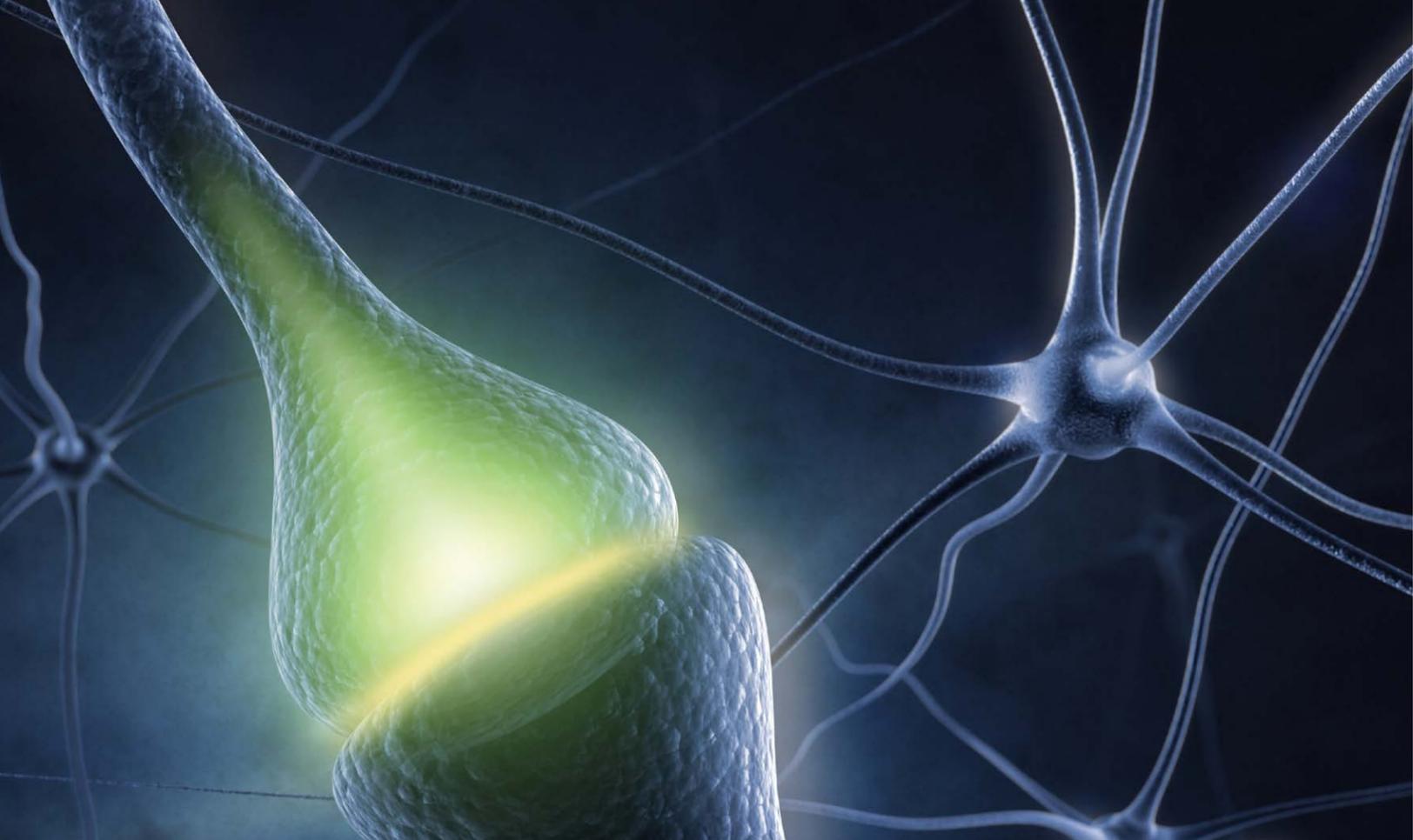
REMED

Since its foundation in 2003, REMED has been specialized in researching and developing world class products for brain stimulation as a true solution of depression.

As a result, REMED has successfully introduced state-of-the-art TMS device, TAMAS® first in its kind in Korea, and is expanding its product portfolio to meet the diverse needs from the field.

Experience the powerful values of TAMAS® providing strong magnetic field of 3 Tesla for deeper brain stimulation.

REMED is the name of true specialist of TMS therapy.



WHY TMS THERAPY?

(TRANSCRANIAL MAGNETIC STIMULATION)

Transcranial Magnetic Stimulation(TMS) is a safe, non-invasive therapy method that uses rapidly changing magnetic field to stimulate the neurons in the brain. It is indicated for the treatment of Major Depressive Disorder(MDD), and other certain conditions, for adult patients who have failed to achieve satisfactory improvement from prior antidepressant medication.

Also, TMS is widely accepted as a unique research tool for the investigation of broad variety of issues in different fields:

Cognitive Neuroscience- in studying mental processes related to memory, speech, perception and functional connection

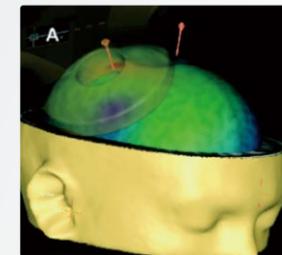
Psychiatry- to influence specific brain function within the dorsolateral prefrontal cortex

Neurophysiology- used in the stimulation of the peripheral and central nerve pathways

Rehabilitation- used in the promotion of muscle recovery and the relief of nerve spasticity

TECHNICALLY PROVEN MECHANISM OF TMS

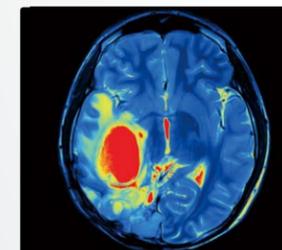
TMS therapy is an outpatient procedure and does not require anesthesia or sedation, so the patient can go back to daily life right after treatment. Unlike other treatments, such as electro-convulsive therapy(ECT), TMS does not cause cognitive side effects or memory problems.



Time-varying electrical current in a coil is produced.



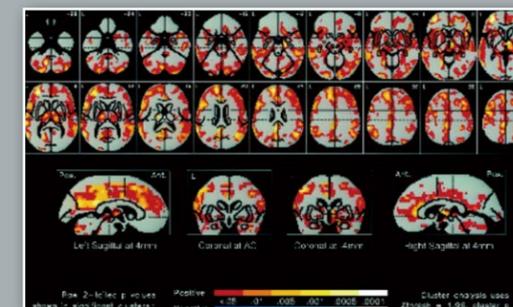
More focused magnetic field from figure of 8 shaped transducer passes unimpeded through skull.



Neurons in the cortex of brain (PFC) is stimulated to lead to behavioral changes.

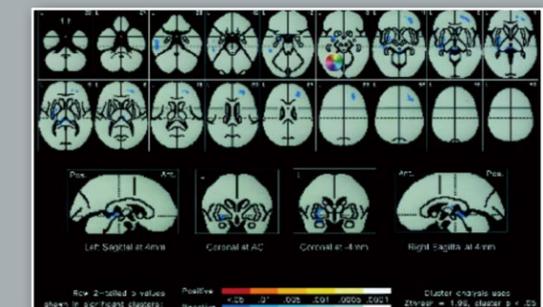
MRI images for patients with Depression and ADHD after TMS treatment

20 Hz



Patient with Depression

1 Hz



Patient with ADHD



세계일류상품

The 1st TMS device approved by KFDA in Korea

TAMAS®

Most reliable & powerful TMS Device

Experience the powerful values of TAMAS® providing strong magnetic field of 3 Tesla for deeper brain stimulation.



Features & Benefits

- Convenient & easy operation by touch screen color display
- Unique design of 8 shaped transducer for focused brain stimulation
- Patented oil circulating transducer for intensive & non-tiring treatment
- 4 stimulation modes for diverse applications : Single, Repetitive, TBS and Pair modes

Technical Specifications

Peak Magnetic Energy	0.5~3.0 Tesla @ 100% output
Frequency	Maximum 100Hz Minimum 0.1Hz
Train Duration	User selectable in 0.1 sec increment
Output waveform	Symmetric biphasic pulse
Pulse width	350µs
Weight	60Kg
Power Supply	200~240 Vac 50/60 Hz
Software	Integrated color touch screen display 4 stimulation mode (single, repetitive, TBS(Theta Burst Stimulation), Pair Stimulation)

Clinical Indications

Depression	Hallucination	Stroke
Obsessive Compulsive Disorder	Insomnia	Parkinson's Disease
Anxiety	Headache	Facial Palsy
Bipolar Disorder	Panic	Multiple Sclerosis
Schizophrenia	Tinnitus	Epilepsy



Economic



Premium

BRAIN STIM[®]

A compact TMS device that brings big satisfaction to patients

World's 1st Compact TMS Device with Customized MEP location



Features & Benefits

- Compact yet powerful TMS device for optimized treatment effect
- Far less space occupation due to compact size
- Easy and minimized operation by touch buttons for 8 kinds of treatment modes
- Easy MEP (Motor Evoked Potential) location by individual patient's head gear (No need to make 2nd MEP for the same patient due to marked head gear)
- In house treatment available for patients who are not available for frequent visit to clinics

Technical Specifications

Magnetic Energy	0.5~2.5 Tesla @ 100% output
Repetition rate	100Hz
Timer Set	60 minutes, 1 min increment
Preset Mode	Mode 1~8
Weight	Device : 5Kg, Transducer : 2Kg
Power Supply	200~240Vac 60Hz, Single Phase
Dimension (W*H*D)	412*316*97mm

Clinical Indications

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Schizophrenia	Tinnitus	Epilepsy

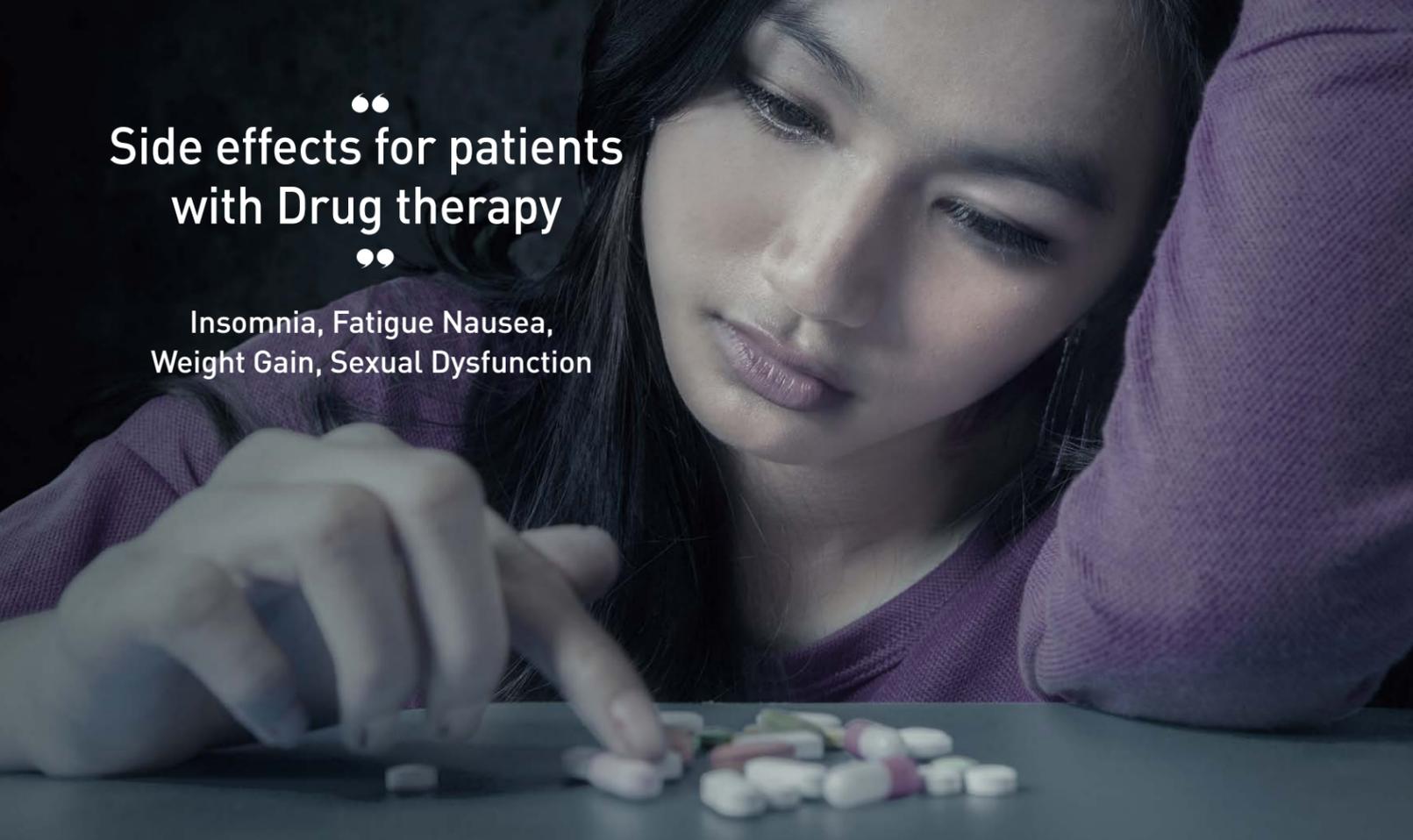


BRAIN STIM[®]



Side effects for patients with Drug therapy

Insomnia, Fatigue Nausea, Weight Gain, Sexual Dysfunction



For the patients with TMS therapy



CLINICALLY PROVEN TMS THERAPY

인지행동-대인관계 치료도 해볼만

이미 치료 효과가 입증돼 정신과에서 사용되고 있는 비약물 치료요법도 있다. 인지행동치료와 대인관계치료가 그것이다. 인지행동치료는 일종의 상담치료다. 환자가 의사에게 자신의 모든 상황을 설명한 다음 의사가 문제점을 지적한다. 환자가 자신의 생각에 매몰될 수 있다는 사실을 다른 방식으로 생각하도록 깨우쳐 주는 것이다. 대인관계치료는 주변 사람 때문에 힘들어 하는 사람에게 적합하다. 환자와 문제의 발단이 되는 사람과의 관계 설정을 새롭게 해 우울증을 해소시킨다. 최근엔 16단계 문답함목이 갖춰진 단기정신역동적지지정신치료(SPSP)도 도입 단계에 있다. 초기 우울증에 효과적이다.

뇌에 직접 자극을 주는 ECT(전기경련요법), TMS(경두개 자기자극치료법)도 있다. ECT는 약물 치료를 거부하거나, 약물 반응이 없는 환자에게 많이 쓰인다. 머리에 번개를 맞는 듯한 전기 자극을 준다. 효과가 좋지만 자극 정도가 심해 마취를 해야 하는 부담이 있다. TMS는 자기장을 뇌에 쏘아 뇌 신경전달물질 분비를 바로 잡아 준다. ECT보다 자극 정도가 낮아 마취가 필요 없지만, 효과는 좀 더 약할 수 있다.

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Accelerated Transcranial Magnetic Stimulation (TMS) for Depression

Summary
 The purpose of this study is to determine if accelerated rTMS treatment over 1.5 days is effective for ameliorating depression in Parkinson's disease.

Description
Objective : The goal of this study is to investigate a new approach to administering repetitive transcranial magnetic stimulation(rTMS) in patients with refractory depression. (Please Note : The original requirement for comorbid Parkinson's disease has been dropped from this study).

Research Plan : This inpatient study will provide an initial test for the hypothesis that accelerated rTMS is an effective treatment for depression. Followup testing will help delineate the time course of response.

Methods : The rTMS treatment site over left dorsolateral prefrontal cortex will be 5.5cm



<의학> 자폐증, 경두개자기자극 치료 실험

(서울=연합뉴스) 한성간 기자= 자폐스펙트럼장애(자폐증)를 두피 가까이에 자기코일을 갖다 대는 이른바 경두개자기자극(TMS : transcranial magnetic stimulation)으로 치료하는 실험이 미국 루이빌 대학(Louisville University)에서 시작됐다고 UPI통신 등이 24일 보도했다.

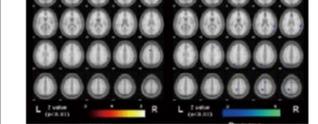
미 국립보건원(NIH)으로부터 88만 8천달러를 지원받아 실시되는 이 실험에서는 자폐아들에게 12~15회에 걸쳐 다소 높은 주파수의 자기자극이 가해지게 된다.

지금까지 예비실험에서는 30명의 자폐아들에게 모두 6차례에 걸쳐 매회 15분씩 낮은 주파수의 자기자극을 가하는 실험이 실시되었으며 반복행동, 사회적 결핍 등 전형적인 자폐증상이 호전되는 효과가 나타났다.

의료

치매 환자, 자기장 자극으로 '뇌기능' 호전

강력한 전류파 출력 보내 '자기장' 을 뇌에 쏘는 방법



▲알츠하이머 환자 TMS 치료 전(좌, 위)후 SPECT 결과 '혈류량' 개선

(메디컬투데이 허지혜 기자)
 알츠하이머병(치매)을 앓고 있는 환자의 뇌부위를 자기장으로 자극해 뇌기능을 호전시키는 임상연구 결과가 나왔다. 가톨릭대학교 서울성모병원 신경과 양동원 교수팀은 알츠하이머 환자 16명을 대상으로 실험군(8명, 대조군(8명))으로 나눠 경두개자기자극술(이하 TMS)을 실시한 결과, 실험군의 인지기능이 향상되고, 뇌혈류량이 증가한 것을 확인했다고 15일 밝혔다.

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LETTER TO THE EDITOR

RTMS may be a good choice for pregnant women with depression

Dongjun Zhang - Zeqing Hu

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Abstract Due to the possible adverse effects on fetus, the treatment of pregnant women with depression is a difficult problem in the field of psychiatry. Repetitive transcranial magnetic stimulation (rTMS) was used to treat three pregnant women with depression in the early pregnancy. After systemic treatments, the patient's depressive symptoms significantly relieved, and each of them smoothly provided a healthy baby. Up to now, we have not found that rTMS can be harmful to fetuses. RTMS may be a good choice for pregnant women with depression.

Keywords Repetitive transcranial magnetic stimulation (rTMS) · Pregnant women · Depression · Treatment

Dear Sir:
 As the symptoms of depression have adverse impacts on pregnant women and fetuses, many experts have been

The letter has not been presented at any meeting.

The work was done at the Department of Forensic Psychiatry, Sichuan University, Sichuan, Chengdu, China.

We acknowledge that the author's of the manuscript do not have conflicting interests.

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studying the treatment of pregnant women with depression. However, we have not found an appropriate treatment until now. In the US, the Food and Drug Administration has not approved any kind of the antidepressant drugs which could be used for pregnant women. Adrienne Einarson et al. (2008) concluded that paroxetine did not appear to be associated with an increasing risk of fetal defects following use in early pregnancy. But Barbara Mintzes and Juraidini (2008) questioned the former conclusion. As we know, due to the possibility of adverse effects on the fetus, there are still a lot of controversies in the area of applying antidepressant to pregnant women. The treatment of depression in pregnant women also is a difficulty in the field of psychiatry, but repetitive transcranial magnetic stimulation (rTMS) may be a good choice for pregnant women with depression.

RTMS is a new neuro-electrophysiological technique, which is developed on the basis of transcranial magnetic stimulation (TMS). With its unique characteristics of non-invasion, simplicity, and security, rTMS has been widely applied in the areas of research and therapies for neuropsychiatric diseases, especially for treating depression. RTMS can enhance the excitement of the brain through adjusting the biological activities of the cerebral cortex and then has wide biological effects, which is one basic mechanism of therapy for depression (Wassermann and Lisanby 2001). Many researchers (Shajahan et al. 2002) found that rTMS was effective in treating depression and the by-effects were not obvious. However, few scholars tried to use TMS to treat pregnant women with depression for its uncertain effects.

In our hospital, three pregnant women with depression received the therapy of rTMS in the early pregnancy. After systemic treatments, the patient's depressive symptoms



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