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Somatic and Biological Therapies

Mental Health Nursing

Electroconvulsive therapy (ECT), repetitive transcranial magnetic stimulation (rTMS), light therapy and other biological treatment approaches; indications, contraindications and nursing responsibilities.

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CHAPTER 19 / MENTAL HEALTH NURSING 19. Somatic and Biological Therapies

1. Definition and classification

Biological treatments act on neural/physiological systems; examples include pharmacotherapy, electroconvulsive therapy (ECT), repetitive transcranial magnetic stimulation (rTMS), light therapy and selected specialist neuromodulation techniques. Selection depends on diagnosis, severity, previous response, risk, preferences and availability.

2. Electroconvulsive therapy (ECT)

ECT is a medical procedure inducing a controlled therapeutic seizure under general anaesthesia and muscle relaxation. May be indicated in severe depression, catatonia, selected severe mania or psychotic conditions when rapid response or treatment resistance warrants it. Assess cardiovascular, neurological, anaesthetic and other risks; elevated intracranial pressure or unstable medical disease requires specialist evaluation. Unmodified ECT is prohibited in India; Section 95 of MHCA 2017 generally prohibits ECT in minors except specified exceptional safeguards (nominated representative consent and prior Board permission when legally indicated).

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3. Nursing care before, during and after ECT

Phase	Key responsibilities
Pre-ECT	Verify identity, order, legally valid consent, anaesthetic evaluation, fasting according to protocol, medication instructions, baseline BP/pulse/SpO2/cognition, dentures/prostheses as appropriate, explanation and anxiety support.
Intra-ECT	Assist trained ECT/anaesthesia team, maintain airway and monitoring readiness, observe ECG/BP/SpO2 and seizure documentation according to assigned role; emergency equipment available.
Post-ECT	Monitor airway, ventilation, circulation, consciousness, pain/nausea and confusion in recovery; maintain safety, reorient, assess return to baseline and discharge criteria, document.

Common short-term effects: headache, muscle soreness, nausea, confusion and memory difficulties. Discuss possible autobiographical memory effects; evaluate benefit and adverse effects over course. Nurse does not administer stimulus independently.

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4. rTMS and light therapy

rTMS uses magnetic pulses to modulate cortical activity, often for selected depression and other indications depending device. Uses no general anaesthesia routinely; assess implants/metal, seizure risk and hearing protection; headache/scalp discomfort may occur, seizure rare. Light therapy uses prescribed timed bright-light exposure in selected seasonal/depressive or circadian presentations; assess eye conditions, photosensitizing drugs and bipolar activation risk. Other techniques (e.g., vagus nerve/deep brain stimulation) are specialized and require individualized consent and follow-up.

5. Important Examination Questions

Long Answer Questions

1. 1. Explain ECT indications, contraindication/risk assessment and pre/intra/post nursing care.

Short Answer Questions

1. 1. Differentiate ECT and rTMS
2. 2. discuss ECT adverse effects
3. 3. describe light therapy.

Very Short Answer Questions (with answers)

1. 1. Is unmodified ECT permitted under MHCA 2017? - No.
2. 2. Does rTMS routinely require general anaesthesia? - No.

6. Quick Revision

- ECT is performed by a trained multidisciplinary team.
- Consent and legal safeguards matter.
- Monitor recovery and memory effects.

7. Conclusion

ECT is performed by a trained multidisciplinary team. Consent and legal safeguards matter. Monitor recovery and memory effects.

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Practice questions

Choose one best answer. The answer key and explanations follow the questions.

1. Which description defines electroconvulsive therapy?

A. Magnetic pulses to modulate cortical activity without a routine general anaesthetic
B. Timed bright-light exposure
C. Unstructured discussion of unconscious conflict
D. A controlled therapeutic seizure under general anaesthesia and muscle relaxation

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2. Which observation is a post-ECT recovery responsibility?

A. Airway, ventilation, circulation and consciousness

B. Only whether the patient remembers the appointment date

C. Only the patient's long-term employment goals

D. Only the number of previous therapy sessions

3. Which treatment uses magnetic pulses to modulate cortical activity?

A. Electroconvulsive therapy

B. Repetitive transcranial magnetic stimulation

C. Light therapy

D. Supportive psychotherapy

4. A patient returns from ECT under anaesthesia. Which assessment has priority during early recovery?

A. Airway, breathing, circulation and level of consciousness

B. Evaluate long-term symptom improvement before anaesthetic recovery observations

C. Provide oral fluid before checking recovery and swallowing

D. Begin mobilisation before checking cardiovascular stability

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Answer key and explanations

1. D - A controlled therapeutic seizure under general anaesthesia and muscle relaxation

ECT induces a controlled therapeutic seizure under anaesthesia and muscle relaxation.

2. A - Airway, ventilation, circulation and consciousness

Post-ECT care includes physiological recovery, consciousness and safety monitoring.

3. B - Repetitive transcranial magnetic stimulation

rTMS acts through magnetic pulses directed at cortical activity.

4. A - Airway, breathing, circulation and level of consciousness

ECT recovery includes anaesthetic recovery priorities. Physiological stability and consciousness are assessed before oral intake, mobilisation or detailed counselling.

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