

Parkinson

- 1) Which type of parkinson exists
 - a. Arm first
 - b. Leg first
 - c. Gut first**
 - d. ...
 - e. ...
- 2) What is not a non-motor symptom
 - a. Hyposmia
 - b. Atrophy?**
 - c. Depression
 - d. Aphasia
 - e. ...
- 3) Age peak of Parkinson
 - a. 45
 - b. 55
 - c. 65
 - d. 75
 - e. 85**
- 4) Not DBS target Parkinson
 - a. Nac**
 - b. PPN
 - c. GPI
 - d. Vim

- e. STN

Tremor

- 1) Right for Parkinson and essential Tremor DBS
 - a. **First approved for DBS**
 - b. Last approved for DBS
 - c. Only approved for DBS in US
 - d. Not approved for DBS
- 2) NOT classification tremor
 - a. Age of onset
 - b. Activation condition
 - c. Frequency
 - e. ...
- 3) Essential Tremor vs Parkinson
 - a. **ET with higher frequency**
 - b. PD with higher frequency
 - c. Both same frequency
 - d. PD only arms
 - e. ET only arms
- 4) Method to make DBS more effective
 - a) **DTI**
 - b) PET
 - c) MEG
 - d) MEP
 - e) EMG

Dystonia

- 1) not a classification
 - a) Age onset
 - b) Body distribution
 - c) Temporal pattern
 - d) **Imaging**
 - e) Inherited or acquired
- 2) Most common dystonia
 - a) Cervical
 - b) mouth
 - c) leg
 - d) arm
 - e) face
- 3) DBS in which types
 - a. Inherited
 - b. Acquired
 - c. Both of them
 - d. None of them
 - e. All
- 4) DBS target for dystonia
 1. VIM
 2. GPI
 3. STN
 4. PPN
 5. Nac

Sleep

- 1) How long is circadian rhythm
 - a. 22 h
 - b. 23 h
 - c. **25 h**
 - d. 26 h
 - e. 27 h
- 2) How can sleep stages NOT classified
 - a. Non REM vs REM
 - b. Oscillatory amplitude
 - c. Oscillatory frequency
 - d. **Circadian clock**
 - e. Sleep depth
- 3) What NOT measured in sleep monitoring
 - a. EEG
 - b. **Electrical skin resistance**
 - c. Airflow
 - d. Breathing
 - e. Body position
- 4) How can sleep not be modulated
 - a. **EEG**
 - b. Auditory
 - c. TMS
 - d. Electrical
 - e. Medication

Tumors I

- 1) Lung cancer NOT correct
 - a. **Risk for cervical cancer after having quit smoking the same as for never smokers**
 - b. Risk arises with more years and cigarettes smoked
 - c. Risk of cancer after quitting decreases the half for ...
 - d. Risk of lung cancer is decreasing 5 years after having quit smoking
 - e. ...
- 2) Capsule Endoscopy Colon NOT true
 - a. Painless
 - b. Precise images
 - c. **Biopsy possible**
 - d. Highly sensitive
 - e. detection of bleeding
- 3) Sth to general incidence/death statistic
- 4) How many of the breast cancer cases can be prevented ?
 - a. **68%**
 - b. 50%
 - c. 23%
 - d. 75%
 - e. 82%

Tumors II

- 1) Over 90 % entity of brain metastases ?
 - a. Lung
 - b. Breast

c. Melanoma

d. Colorectum

e. Prostate

2) Correct about vestibular schwannoma

a. Nerve sheath tumor

b. Grows next to cerebello-pontine angle

c. Malign

3) Neuroendoscopy NOT true

a. Smaller incisions

b. Less damaging

c. Quicker healing

d. Reduced infection risk

e. ...?

4) Symptoms of vestibular Schwannoma??

Tumors III

1) What is true about brain biopsies?

1. a-c) can only be performed during ... (open surgery/ stereotactic surgery/
third kind of surgery

2. biopsy can be used for microscopical determination of tumor grade

3. Gives information about proliferation rate

2) Glioblastoma treatment

a. Radiotherapy

b. Chemotherapy

c. Microsurgery

d. None of the above

e. **All of the above**

- 3) In which method focused radiation is used (in radiosurgery)
- a. Stereotactic surgery
 - b. 3D
 - c. 2D
 - d. Whole brain

4)

TBI, Coma, LIS, ALS

- 1) What is dysarthria
- a. Dysfunction of muscles**
 - b. Speaking is impaired so that artificial words are created
 - c. Speaking is impaired so that only weird sounds are possible
- 2) Most common cause
- a. Fall < 3m**
 - b. Fall > 3m
 - c. car crash
 - d. motor vehicle crash
- 3) Vegetative state
- a. High arousal – low awareness**
 - b. Low arousal – low awareness
 - c. Low arousal – high awareness
 - d. ... other combinations
- 4) Diagnosis of brain death ???

Paralysis I

- 1) Indication surgery

- a. Pain
 - b. Bladder incontinence**
 - c) something with less feeling/ numbness
- 2) No symptom TSCI
- a. Spasticity
 - b. Chronic pain
 - c. Sexual dysfunction
 - d. Bowel dysfunction
 - e. Depression**
- 3) NOT long-term treatment TSCI
- a. Replace tissue
 - b. Glial scar treatment
 - c. anti-Inflammatory drugs
 - d. immobilization
 - e. ... Physiotherapy
- 4) NOT treatment of TSCI
- a. Exoskeleton
 - b. Trans-spinal stimulation
 - c. Electrical stimulation
 - d. Percutaneous stimulation
 - e. ... with subdural electrode

Paralysis II

- 1) Majority of strokes are
- a) Subarachnoidal hemorrhage
 - b) Epidural hemorrhage
 - c) Subdural hemorrhage

- d) **Ischemic**
- e) Intracerebral hemorrhage
- 2) Advanced material
 - a. **Carbon**
 - b. Titanium
 - c. Copper
 - d. Gold
 - e. silver
- 3) Challenges that engineers need to face during development of ...
 - a. **Making stiff electronics soft**
 - b. Making soft electronics stiff
 - c) remove electronics from the system
 - 4. Increase cable number / electronics size
- 4) ?

Seizure I

- 1) Most common causes in patients < 60 years
 - a. **Unknown**
 - b. Vascular
 - c. Tumor
- 2) How many percent seizure free with pharmacotherapy
 - a. 50 %
 - b. **66 %**
 - c. 75 %
 - d. 33%
 - e. 100 %

3) Which of the following regarding stereotactic EEG is NOT correct?

- a) Can be implanted frame-based
- b) Can be implanted frameless
- c) Can be implanted roboter-assisted
- d) Induces bleedings in approx. 10 % of the cases**
- e) Is usually recorded by a multiple depths electrode

4) Diagnostic of ... NOT true

- a. Epidural ECoG
- b. Subdural ECoG
- c. EEG
- d. multiple depth electrodes
- e. Para something ECoG

Seizure II

1) Surgery for Vagus Nerve stimulation in epilepsy is applied

- a) In the brainstem
- b) At the neck**
- c) In the ear
- d) In the motorcortex
- e) In the hippocampus

2) On average, VNS leads to seizure reduction of

- a) 10 %
- b) 25 %
- c) 50 %**
- d) 75 %
- e) 100 %

3) Closed-loop seizure treatment may NOT include

- a) Cardiac-based seizure detection
- b) Electrode-based seizure detection
- c) **Hormone-based seizure detection**
- d) EEG-based seizure detection
- e) Brain-activity based seizure detection

4) ...

Pain I

- 1) What is no neuropathic pain cause
 - a. MS
 - b. Arthritis**
 - c. damage of nerves
 - d. spinal cord injury
 - e. phantom pain
- 2) What is NOT a typical symptom of migraine?
 - a) Nausea
 - b) Hypothermia**
 - c) Visual changes
 - d) Poor concentration
 - e) Headache
- 3) What is the most common location of chronic pain?
 - a) Neck
 - b) Shoulder
 - c) Back**
 - d) Knee

e) Head

4)

Pain II

1. Which of the following statements is NOT correct for neural blockade methods?

- a) Use of steroids
- b) Use of local anesthetics
- c) Use of opioids
- d) Results in permanent pain relief**
- e) May reduce inflammation

2. Which of the following statements regarding intrathecal pumps is NOT correct?

- a) Cannot be refilled**
- b) May be controlled by a smartphone
- c) Is applied for cancer pain
- d) Reduces spasticity
- e) Is applied when other surgeries cannot be applied

3. Stimulation for pain treatment is applied to the

- a) Sensory cortex
- b) Motor cortex**
- c) Striatum
- d) Anterior cingulum
- e) Nucleus accumbens

Mental Health I

- 1) No treatment in depression
 - a. Psychosocial
 - b. Psychological
 - c. Pharmacotherapy
 - d. Electroconvulsive stimulation
 - e. ?
- 2) Electroconvulsive therapies NOT true
 - a. 70-120 V
 - b. Induce seizures
 - c. **is applied for some minutes**
 - d. (Transient) memory loss
 - e. Confusion
- 3) Schizophrenie non-invasive stimulation target
 - a. **TPC**

Mental Health II

- 1) NOT Alzheimer Symptom
 - a. Drastic behavior changes
 - b. Problem abstract thinking
 - c. **Difficulty easy thinking**
 - d. Difficulty doing simple tasks
 - e. memory loss
- 2) NOT risk $\geq 4\%$ factor for Alzheimers
 - a. Hypertension

- b. Alcohol
- c. Genetic**
- d. Smoking
- e. Social isolation

3) DBS Stimulation for OCD

4. ...