Mental disorders due to Brain Organic Disease

Teaching and Research office of Psychiatry, West China medical school S.U.
Key Points

- Introduction
- Conscious disturbance and intellectual deficiency
- Common organic brain syndrome
- Manifestation, Differentiation, Diagnosis, and principle of treatment
- Alzheimer's disease
Introduction

Mental disorders due to brain organic disease are the generic name of a group of mental disorders directly induced by the impairments of CNS which are caused by brain degeneration diseases, cerebrovascular disease, intracranial infection, craniocerebral trauma, intracranial tumor, epilepsies.
Explanation

- **Inclusion:** a group of diseases

- **Cause:** impairments of CNS due to brain diseases

- **Manifestation:** symptoms and signs of nervous system + psychotic symptoms

- **Prognosis:** dependent on the brain diseases
  - (property, location, dimension, degree, course, therapy)
Cause

- **Degeneration:** Alzheimer’s disease, Parkinson's disease, Lewy’s body dementia
- **Vascular:** stroke, Vascular dementia
- **Occupation:** tumor, Subdural hematoma
Cause

- **Infection**: encephalitis, neurosyphilis, AIDS
- **Trauma**: cerebral trauma
- **Intoxication**: oxygen deficiency, alcohol, carbon oxide, drug
- **Epilepsy**
Clinical Manifestation

Symptoms and signs of Nervous System lab positive results

+ Psychiatric symptom
Common symptoms

- Conscious disturbance
- Disturbance of attention
- Dysmnesia (memory disorder)
- Disturbance of intelligence
- Focal brain syndromes
Conscious Disturbance

Concepts of consciousness

Degree of awareness of brain

Recognition of environment and self
conscious disturbance
Types and Manifestation

<table>
<thead>
<tr>
<th>Acute</th>
</tr>
</thead>
<tbody>
<tr>
<td>Decreasing of consciousness</td>
</tr>
<tr>
<td>Changing of dimension and context</td>
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</table>

<table>
<thead>
<tr>
<th>Chronic</th>
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<tbody>
<tr>
<td>Decorticate syndrome</td>
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<tr>
<td>Akinetic mutism</td>
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<tr>
<td>Locked-in syndrome</td>
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</table>
Conscious disturbance

Level of consciousness:

| drowsiness |
| confusion |
| stupor     |
| coma       |
# Conscious disturbance

<table>
<thead>
<tr>
<th></th>
<th>alertness</th>
<th>Non-speech stimulus</th>
<th>Speech stimulus</th>
<th>physiological reflex</th>
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</thead>
<tbody>
<tr>
<td>drowsiness</td>
<td>normal</td>
<td>normal</td>
<td>normal</td>
<td>exist</td>
</tr>
<tr>
<td>confusion</td>
<td>decrease</td>
<td>decrease</td>
<td>torpor</td>
<td>exist</td>
</tr>
<tr>
<td>stupor</td>
<td>Obvious decrease</td>
<td>Partial response</td>
<td>vanish</td>
<td>Swallow cornea</td>
</tr>
<tr>
<td>coma</td>
<td>vanish</td>
<td>vanish</td>
<td>vanish</td>
<td>vanish</td>
</tr>
</tbody>
</table>
Dimension of Consciousness

**Characteristic:** normal mentation in limited dimension, response delayed, retardation of thought, orientation, perceptivity, judgment, prediction

**Manifestation:**
- twilight state
- Somnambulism
- fugue
Variation of Content of Consciousness

Delirium

Manifestation:

1. decreased consciousness
2. illusion, hallucination
3. non-concordant psychomotor excitement
Identify consciousness disturbance

- Disturbance of attention (most sensitive)
- Immediate memory
- Speech response
- Non speech response
- Orientation (no memory disturbance)
Intelligence

- Ability and capability to accept and apply the knowledge

- Inclusion: common sense, observation, attention, memory, perceptivity, calculation, analysis, creative power, imagination, judgment, reasoning
Disturbance of Intelligence

Mental retardation:

<18-year-old, Brain impaired by adverse factor and Development of intelligence blocked
Disturbance of Intelligence

Dementia

>18-year-old, after the mature of brain development, intellectual deterioration induced by adverse factors
Intelligence test
IQ grade division

>130 extreme superiority
2.2%

120-130 superiority
6.7%

110-120 above moderate
16.1%

90-110 moderate
50%

70-85 borderline
6.7%

80-90 inferior
16.1%

<70 disturbance of intelligence
2.2%

<70 disturbance of intelligence
2.2%

>130 extreme superiority
2.2%
Disturbance of intelligence: IQ grade division

<table>
<thead>
<tr>
<th>Grade</th>
<th>IQ value</th>
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<tr>
<td>normal</td>
<td>&gt; 85</td>
</tr>
<tr>
<td>borderline</td>
<td>70 ~ 85</td>
</tr>
<tr>
<td>light</td>
<td>50 ~ 69</td>
</tr>
<tr>
<td>midrange</td>
<td>35 ~ 49</td>
</tr>
<tr>
<td>heavy</td>
<td>20 ~ 34</td>
</tr>
<tr>
<td>extremely heavy</td>
<td>&lt; 20</td>
</tr>
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</table>
Organic brain syndrome

- Acute brain syndrome
- Chronic brain syndrome
Acute brain syndrome

| **Cause:** | diffuse and temporary pathological changes in brain |
| **Manifestation:** |
| \(\text{n}\) acute, temporary and total disturbance of intelligence |
| \(\text{n}\) Consciousness disturbance (delirium) |
| **Course:** | acute onset, fast development, short period, reversible |
Chronic brain syndrome

- **Cause:** Chronic encephalopathy, protraction of acute brain syndrome
- **Manifestation:** chronic, persistent intelligence deterioration
- **Course:** chronic onset, slow development, irreversible
Dementia syndrome

- Intelligence disturbance
- Personality change
- Affective disorder
- Behavior disorder
Amnestic syndrome

- Progressive amnesia
- Paramnesia and Confabulation
- Loss of orientation
- Personality change
Diagnosis

A: Clinical manifestation

1. craniocerebral disease (symptoms, signs and lab positive results)
2. one of variable brain syndromes

B: Severity

C: Course

The happens, development and prognosis of psychiatric symptoms related to the craniocerebral disease

D: Exclusion

metal disorder due to other causes
Principle of treatment

- Etiological treatment is most important
  - alleviate and vanish the symptoms and signs of CNS
  - alleviate and relief the psychiatric symptoms
- Symptomatic treatment is secondary
  - the treatment of psychiatric symptoms: safe, effective and short term
Alzheimer’s disease, AD
What is Alzheimer's Disease?
First described in 1906 by German neurologist, Dr Alois Alzheimer, this disease is a progressive, degenerative disorder that affects the brain.
Introduction

- A progressively developing and retrograde degenerated disease
- Age of onset: > 65-year-old
- course: average 5 – 10 years
  - latent onset, slow development, progressive deterioration
- manifestation: chronic brain syndrome
- prognosis: irreversible
Alzheimer's Disease affects 5% of people over 65 and affects 20% of people over 80.
Cause and Pathogenesis

- **Pathology**: brain cortex atrophy, widened gyrus, enlarged cerebral ventricle, senile plaques, neurofibrillary tangles

- **Heredity**: familial aggregation
  
  21 (APP) 19 (APOE) 1 (PS2)
  
  14 (PS1) chromagene mutation
Cause and Pathogenesis

- **Neurobiochemistry:** cortex and hippocampus
  Ach hypothesis (choline acetylase ↓  
  acetylcholine ↓)

- **Pathogenesis:** unbalance of neuron apoptosis  
  and modification
# Manifestation

<table>
<thead>
<tr>
<th>Period</th>
<th>earlier</th>
<th>middle</th>
<th>final</th>
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<tbody>
<tr>
<td>Memory</td>
<td>+</td>
<td>++</td>
<td>+++</td>
</tr>
<tr>
<td>Dementia</td>
<td>—</td>
<td>+</td>
<td>+...</td>
</tr>
<tr>
<td>Personality</td>
<td>—</td>
<td>+</td>
<td>+</td>
</tr>
<tr>
<td>change</td>
<td>—</td>
<td>+</td>
<td>+</td>
</tr>
<tr>
<td>Decrease of</td>
<td>⊥</td>
<td>+</td>
<td>+...</td>
</tr>
<tr>
<td>Social function</td>
<td>⊥</td>
<td>+</td>
<td>+...</td>
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Diagnosis

- Manifestation: chronic brain syndrome
- Checking of nervous system
- Psychiatric interview
- Intelligence Test (mini mental state exam)
- Exclusion of dementia due to other causes
Treatment

- Live care and nursing
- Nootropics:
  - AchE inhibitor: donepezil
  - NMDA antagonist: Mematine
- Psychiatric symptoms: Olanzapine
Thanks!