Mechanisms, Perspectives, Concepts and Domains of Depression: What Do We Need to Know?

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Mechanisms, Perspectives, Concepts and Domains of Depression:
Beyond Low Mood & SIGECAPS

Disclosure Statement

Within the past 12 months, I have had no financial relationships with proprietary entities that produce health care goods and services.
Depression: Some Big Questions

- What is the etiology of depression?
- Can we develop/utilize better treatments, both in general and for specific patients?
- Are there other ways to conceptualize depression that can advance research and our clinical practice?
- What should we be teaching students and trainees about depression?

Brain Complexity

- 84% of the ~20,000 genes are expressed somewhere in the brain
- 100 billion neurons
- Trillions of synaptic connections
- > 30,000 attendees at 2013 Society for Neuroscience
- 298,844 PubMed citations on depression
Major Depressive Disorder
Neural Systems Affected

Kupfer et al., Lancet 2012

Biology

DNA
RNA
Proteins
Lipids
Neurotransmitters
Hormones
Cytokines
Receptors
Cells
Structures
Pathways
Systems

The Heavily Connected Brain

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See also Blumberg, 2015, New Engl J Med, and Postes
Structural and Functional Brain Networks

Major Depressive Disorder
Neural Systems Affected

Short-Circuiting Depression
Experimental deep brain stimulation surgeries for depression are giving old theories about the disorder a jolt.
Disrupting these rhythms is associated with long-term adverse health consequences including metabolic and mental disorders.

- Rey & Reddy, 2013
Sleep & Depression

Sleep Therapy Seen as an Aid for Depression

Sleep is often thought of as a means to a good night’s rest, but recent studies are revealing that it may also be a factor in the prevention and treatment of depression. The findings, based on a meta-analysis of 11 studies, suggest that sleep-related interventions, such as cognitive behavioral therapy for insomnia (CBT-I) and sleep restriction, can play a significant role in the treatment of depression.

• Cognitive Behavioral Therapy for Insomnia (CBT-I)
  - Carney et al. (unpublished)
    - Four biweekly CBT-I sessions
    - Subjects with resolution of insomnia had almost twice the rate of resolution of depression after 8 weeks, with antidepressant or placebo
    - 66 subjects
    - Study with > 300 subjects will be released next year

CBT-I: Not Just Sleep Hygiene

• Address Three Areas
  - Conditioned arousal (using the bed as a cue for sleep)
  - Identify and eliminate habits that are now ineffective
  - Reduce sleep-related worry and sources of heightened arousal

• Sleep restriction (reduced time in bed)

• Align sleep with individual’s circadian clock

• [Website] stanfordhospital.org/clinicsmedServices/clinics/sleep/treatment_options/cbt.html
Insomnia and Disease

Insomnia Could Raise Risk Of Heart Disease And Death In Men
by Warith Singh
November 22, 2013 11:07 AM

Men who reported difficulty falling or staying asleep had a moderately higher risk of death, especially from cardiovascular disease, than did men who said they fell asleep easily, a study finds.

Li et al. Circulation, 2013. doi:10.1161/CIRCULATIONAHA.113.004000

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Integration in Psychiatry...

...or sometimes lack thereof:

- Brain vs. Mind
- Biological vs. Psychological
- Genes vs. Environment
- DSM vs. Research Domain Criteria (RDoC)

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Depression

Research Domain Criteria (RDoC)

Positive Valence

Negative Valence

Social Regulatory Processes

Depression

Cognitive Systems

Systems ↔ Treatments ↔ Services

RDoC & DSM

Perspectives

• DSM remains essential clinically

• RDoC goal is to translate advances in neuroscience to the clinic

Psychiatric Pluralism

• Limitations of:
  – Dogmatism (biological vs. psychoanalytic)
  – Eclecticism (biopsychosocial, DSM)
  – Integrationism (mind & brain together)

• Pluralism
  – Perspectives
  – Focus on the individual

Depression Today: One Perspective

• Depression disease vs. nondisease

• MDD Construct = overdiagnosis and inappropriate treatment for some

• A little despair is ok?
Core Clinical Problems (Exemplars)

- Common illnesses
- Integrate horizontally (by time) and vertically (by strand) across curriculum
- Involves more than one organ system/MOHD
- Introduce pharmacology concepts and agents
- Depression, alcohol/substance abuse, dementia, delirium
Depression Exemplar

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Summary

- There is progress in understanding the complexity of the brain and using this knowledge to treat depression

- Treating sleep disturbance may be the key to treating depression for some patients

- What one needs to know about depression depends on the setting (clinic vs. lab vs. class), but there is a common core of knowledge we should all understand

- Psychiatry still has disagreement about defining and treating depression, however......

...controversy is not unique to psychiatry