

Finally, for some the link between mental illness and brain function remains controversial; particularly how psychosocial events causally affect the workings of an internal organ. Taking mood disorders as an example, we might see the core requirements as two-fold: first, the neural mechanism must be sensitive to specific insults (e.g. stress-provoking life events); and second, it must be implicated in a network which includes areas thought to be responsible for the behaviours seen in the syndrome (e.g. affective state evaluation in the amygdala, hypothalamic dysregulation of sleep and appetite, the hippocampal storage and retrieval of episodic memory).

The habenula is a small thalamic structure that receives input from the hippocampus, amygdala, hypothalamus and the basal ganglia – structures associated with monoaminergic neurotransmission – which makes it a candidate for a central role in mediating between reward processing, memory, emotion, endocrine and circadian systems. It is activated by negatively valenced events, and hyperactivity in the habenula, induced by excitatory input, has been linked with depression. Shabel *et al*⁸ shed light on the neurochemical control of activity in the habenula. They found, in a rat model of depression, that inhibitory gamma-aminobutyric acid (GABA) is co-released with excitatory glutamate in the lateral habenula when directly stimulated from the basal ganglia. This ‘dual release’ mechanism provides internal regulatory control; however, when the balance shifts towards an increased excitatory state characterised by increased glutamate release, with reduced inhibitory GABA, the habenula becomes overactive (as evidenced in models of depression). Further, they showed that administration of citalopram increased the release of inhibitory GABA at the lateral

habenula/basal ganglia input synapses, normalising the influence of excess excitatory glutamate. Kaleidoscope was curious about rodent models of depression: a quick Google search returned some interesting hits, notably, the ratfanclub.org, where a section ‘Understanding grief when a rat dies’ provided guidance for how to manage rodents’ difficulties dealing with kinship loss.

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- 4 http://www.ncbi.nlm.nih.gov/pubmed/25219520#cm25219520_6388 (accessed 4 Nov 2014).
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poems
by
doctors

Aquiline

Jacob Louis Freedman

You ask me if I believe in resurrection
And I gracefully evade your question
It's not that I don't but rather that I fear you'll be upset
If I don't appreciate your centrality in the process

Dancing through the local graveyard hasn't tired you out
And you dodge my questions too
You do not wish to tell me why you perch on the hospital bed
Aquiline and fixated on some distant prey

When I ask you what you're looking at
You tell me *The Universe*
And yet this big place is just far too small
To keep the nurses from staring back at you

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