Bipolar disorder treatment

Substantial progress has been made in the development of pharmacotherapeutic and psychosocial interventions for various phases of BD. Notwithstanding these developments, the majority of BD individuals, and particularly patients with bipolar depression, receiving guideline concordant care do not experience syndromal or functional recovery, underscoring the need for novel treatments. Early success with deep brain stimulation (DBS) in the treatment of major depressive episodes as part of major depressive disorder (MDD) has provided the impetus to explore its application in other treatment-resistant psychiatric disorders, notably BD.

The habenula is a novel target that could aid in reducing neuropsychiatric symptoms and should be considered in the circuit-specific investigations of neuromodulation for psychiatric disorders. More information needs to be gathered and assessed before this treatment is fully approved for the treatment of neuropsychiatric conditions [1)].

There are distinct proteomic changes in different brain areas of the same mood disorder, and in the same brain area between major depressive disorder and Bipolar disorder patients, which strengthens the distinct pathogeneses and thus treatment targets [2)].

Lipsman et al. conducted a PubMed literature search, focusing on English language articles beginning in 1950 to the present day, and employed the following search terms: bipolar disorder, neurosurgery, deep brain stimulation, neuroimaging, and circuitry. Search results were then manually reviewed and relevant articles selected for analysis. Relevance was determined by author consensus and overall manuscript quality. We also reviewed articles on currently available treatment options for BD in order to develop a coherent and practical definition of treatment resistance with a focus on surgical intervention.

Several lines of evidence indicate that although mania is the defining feature of bipolar I disorder, depressive symptoms and episodes dominate the longitudinal course, account for most of the illness burden including premature mortality, and are least responsive to contemporary treatments. Disease models in bipolar depression implicate abnormalities in the structure and function of discrete neural circuits that subserve affective processing and cognitive function with the subgenual cingulate cortex occupying a central role. Modulation of the cingulate cortex with DBS in treatment-resistant MDD populations has proven to offer acute and sustained antidepressant effects, suggesting possible benefits for other mood disorder populations.

A surgical intervention for bipolar depression would not only be a proof of concept regarding disease modeling but also an important and novel treatment avenue for individuals affected by bipolar depression [3)].

1)

Abraham ME, Ong V, Gendreau J, Brown NJ, Choi EH, Shlobin NA, Yang CY, Shahrestani S, Himstead AS, Detchou DK, Patel N, Gold J, Sahyouni R, Diaz-Aguilar LD, Ben-Haim S. Investigating Deep Brain Stimulation of the Habenula: A Review of Clinical Studies. Neuromodulation. 2022 Jul

12:S1094-7159(22)00724-3. doi: 10.1016/j.neurom.2022.05.005. Epub ahead of print. PMID: 35840520.

2)

Qi YJ, Lu YR, Shi LG, Demmers JAA, Bezstarosti K, Rijkers E, Balesar R, Swaab D, Bao AM. Distinct proteomic profiles in prefrontal subareas of elderly major depressive disorder and bipolar disorder patients. Transl Psychiatry. 2022 Jul 11;12(1):275. doi: 10.1038/s41398-022-02040-7. PMID: 35821008; PMCID: PMC9276790.

3)

Lipsman N, McIntyre RS, Giacobbe P, Torres C, Kennedy SH, Lozano AM. Neurosurgical treatment of bipolar depression: defining treatment resistance and identifying surgical targets. Bipolar Disord. 2010 Nov;12(7):691-701. doi: 10.1111/j.1399-5618.2010.00868.x. Review. PubMed PMID: 21040286.