iterature Review Introduction Major Depressive Disorder (MDD) is a common psychiatric condition worldwide, causing substantial morbidity, impaired functioning, and increased suicide risk.Clinical Evidence Clinical studies and randomized trials show rapid antidepressant effects of intravenous ketamine in TRD patients, with significant improvements over placebo, highlighting its potential as an innovative treatment (8,9).Ketamine as a Novel Antidepressant Ketamine, an NMDA receptor antagonist used in anesthesia, shows rapid antidepressant effects by modulating glutamate and enhancing synaptic connectivity.Conventional antidepressants target monoamines (serotonin, norepinephrine) but have delayed onset and limited efficacy in many patients, highlighting the need for alternative therapies (2,3).Body treatment–resistent depression and limitation of conventional therapies TRD is defined as the lack of response to at least two adequate antidepressant trials.Dysregulated glutamatergic neurotransmission, impaired synaptic plasticity, and altered neurotrophic signaling are key contributors.This boosts thoughts–derived neurotrophic factor (BDNF) and promotes synaptic plasticity in temper–related thoughts regions (7).