

Table 1. Cases of Concomitant Ketamine and MAOI Use Reported in the Literature

Study	Age (y), Sex	(Psychiatric) Diagnosis	MAOI	Ketamine Treatment	Clinical Results (Efficacy)	Safety
Doyle 1990 ³⁴	42, F	Depression. Emergency laparotomy for ruptured ectopic pregnancy in hemodynamically unstable condition	Tranlycypromine 20 mg/d	IV ketamine 1.5 mg/kg, single dose	Not applicable	Patient's hemodynamic course remained unchanged with induction and intubation
Szymkowicz et al 2013 ³⁹	Age/sex unspecified	TRD with suicidal ideation	Phenelzine 45 mg/d	IV ketamine, 0.5 mg/kg, 6 infusions every other day	Response was produced	No significant physiologic or psychological side effects
Zigman and Blier 2013 ⁴²	37, F	MDD with suicidal ideation, history of remote pituitary adenoma resection, treated for vitamin B ₁₂ deficiency and hypothyroidism	Moclobemide 600 mg/d	IV ketamine, 0.5 mg/kg, single infusion	Immediately after the 40-min infusion, dysphoria decreased from 10/10 to 3/10, anxiety from 8/10 to 0/10, and suicidal ideation from 9/10 to 0/10. Benefits lasted approx. 8 d	Vital signs were stable throughout, and there were no medical adverse events
Wink et al 2014 ⁴¹	29, F	ASD, MDD, anorexia nervosa, OCD	Transdermal selegiline (dose unspecified)	IN ketamine, 20 mg increased up to 60 mg, 12 treatments over 42 days	Acute state (within 24 h): improvement in mood, dramatically improved BDI and MADRS scores	Ketamine was well-tolerated. Adverse events: transient sedation, dizziness, numbness of limbs and face, blurred vision lasting approximately 90 min post dose, headache lasting 6–10 h post dose. No notable change in BP, HR, or body temperature.
Bartova et al 2015 ¹⁸	P1: 43, F P2: 74, F	P1: TRD P2: TRD, Graves' disease	P1: tranlycypromine 10 mg/d P2: tranlycypromine 20 mg/d	P1: IV esketamine, initial dose 12.5 mg increased to 75 mg, frequency and no. of infusions unspecified P2: IV esketamine, initial dose 25 mg increased to 50 mg twice weekly, no. of infusions unspecified	P1: Good antisuicidal effects P2: Good antisuicidal effects lasting approximately 24 h	P1: No relevant changes in vital signs P2: No relevant cardiovascular/vital signs changes
Kallmunzer et al 2016 ³⁶	63, M	Unipolar depression (severe suicidal ideation), alcohol abuse (recovered)	Moclobemide (dose unspecified)	IV esketamine, 0.3 mg/kg, 7 infusions over 10 wk	MMSE baseline score: 27 MMSE discharge score: 26	Stable response, no evidence of serious cardiovascular side effects Recurrent headaches between wk 2 and 5
Katz et al 2018 ¹²	P1: 62, F P2: 55, F P3: 26, F P4: 71, M P5: 60, M	P1: bipolar depression, remote coronary artery dissection, remote STEMI, HTN, HLD P2: MDD with psychotic features, obesity, urinary incontinence P3: MDD P4: MDD with psychotic features, COPD P5: MDD with psychotic features, DM2, HTN, hypothyroidism	P1: tranlycypromine 40 mg/d P2: tranlycypromine dose ranging from 10 to 60 mg/d P3: phenelzine 45 mg/d P4: tranlycypromine 40 mg/d P5: selegiline 12 mg/d	IV ketamine P1: 0.5 mg/kg, 60 infusions P2: 0.5 mg/kg, 53 infusions P3: 0.5 mg/kg, 40 infusions P4: 30 mg, 4 infusions P5: 0.5 mg/kg, 2 infusions	No information given	All but 1 patient were treated without significant changes in blood pressure or cardiovascular adverse events. One patient (with comorbid cardiac history) experienced transient and asymptomatic increases in blood pressure to the 180s/110s during rare infusions that required temporary pauses in the infusion. An NSTEMI was experienced by this patient during study, not thought to be related to the ketamine infusions
Bottemanne et al 2020 ³³	P1: 56 P2: 19 P3: 40 Sex unspecified	P1: TRD P2: bipolar TRD with suicidality P3: TRD	P1: phenelzine 45 mg/d, increased to 75 mg/d P2: phenelzine 45 mg/d, increased to 60 mg/d P3: switch from moclobemide 450–600 mg/d to phenelzine 45 mg/d during ketamine treatment	IV ketamine P1: 0.5 mg/kg, spaced 72 h apart, 6 infusions P2: 0.5 mg/kg, spaced 72 h apart, 9 infusions P3: 0.5 mg/kg, 3 infusions in 1 week, then 3 infusions of 0.75 mg/kg spaced 72 h apart, then 4 weekly infusions of 0.75 mg/kg	P1: MADRS decreased from 45/60 to 18/60 P2: MADRS score decreased from 49/60 to 34/60 and there was a significant reduction in suicidal ideation P3: MADRS score reduction from 41/60 to 18/60	No significant hemodynamic changes. During infusion, mean ± SD systolic blood pressure was 123 ± 9.8 mm Hg, mean diastolic blood pressure was 80 ± 12.2 mm Hg, mean heart rate was 91 ± 10.9 bpm. Ketamine infusion was not associated with a significant increase in blood pressure within 2 hours of administration
Dunner et al 2020 ³⁵	61, F	Persistent depressive disorder (recurrent chronic major depressive disorder) with moderately severe anxious distress and with melancholic features	Tranlycypromine 60 mg/d	IN esketamine spray, doses ranging from 28 to 56 mg, twice weekly for 4 wk	Baseline depression and anxiety scores (including HARS, QIDS, HDRS, and MADRS) were in moderate range of anxiety and depression. At the end of treatment all mood and anxiety ratings were in normal range	No evidence of hypertension or serotonin syndrome
Lu et al 2020 ³⁷	P1: F P2: M P3: F P4: M P5: F P6: F Age 36–84	Moderate or severe depression, suicidality P1: paranoia P2: pressure-inducing brain tumor P6: PTSD and ECT-related memory loss	Transdermal selegiline 6 mg/d	IV ketamine, 0.5 mg/kg, up to 3 infusions in 2 weeks, until significant improvement or 3 treatments were reached	All patients' MADRS scores decreased with an average of 15 (± 7)	Some patients had mild dissociative symptoms or elevated BP/HR, but none of these persisted after 2 h and did not result in additional intervention or treatment termination
Wang and Swainson 2020 ⁴⁰	P1: 51, F P2: 57, M P3: 70, F	P1: TRD, hypothyroidism, migraine, gastroesophageal reflux disease, tobacco use disorder, obesity, HTN, dyslipidemia P2: TRD, DM2, alcohol use disorder, gastroesophageal reflux disease, previous ventricular septal defect repair P3: TRD, bipolar II disorder	P1: phenelzine titrated from 15 mg twice daily to 45 mg twice daily, initiated from the 29th ketamine infusion P2: phenelzine 60 mg and 45 mg daily P3: phenelzine titrated from 15 mg daily to 30 mg twice daily, initiated from the 8th ketamine infusion	IV ketamine 0.5 mg/kg P1: 73 infusions, weekly to twice weekly P2: 10 infusions P3: 8 infusions twice weekly, 10 infusions weekly	P1: IV ketamine was beneficial during duloxetine washout before initiation of phenelzine P2: good response P3: good effect	P1 and P3: treatment well-tolerated without precipitating an episode of hypertensive crisis P2: minor and transient BP and HR elevations that were well tolerated without precipitating an episode of hypertensive crisis. Over the total of 66 infusions in all patients, the mean ± SD baseline and highest systolic BP were, respectively, 125.4 ± 14.5 mm Hg and 128.5 ± 15.5 mm Hg (<i>P</i> = .011). The mean ± SD baseline and highest diastolic BP were, respectively, 78.9 ± 9.4 mm Hg and 78.9 ± 9.8 mm Hg (<i>P</i> = .98). The mean baseline and highest HR were, respectively 81.5 ± 10.1 bpm and 81.3 ± 9.4 bpm (<i>P</i> = .73).
Ludwig et al 2021 ³⁸	Cohort study N = 43	Unipolar depression: n = 35 Bipolar depression: n = 14 Schizoaffective disorder: n = 3 Diagnosed HTN: n = 30	Tranlycypromine: n = 14 No tranlycypromine: n = 38 (9 both on and off tranlycypromine) Daily dose of tranlycypromine ranging from 10 to 60 mg	Esketamine 0.25–0.5 mg/kg First dose IV, subsequent doses SC In total, 507 doses Mean ± SD: TCP+: 6.29 ± 6.3 TCP–: 11.79 ± 9.56	No information given	A significant difference in mean BP and changes in BP between TCP+ and TCP– patients. Mean HR decreased in both groups and did not differ significantly. Mean ± SD systolic and diastolic BP: TCP+: 128.93 ± 18.54 mm Hg, 77.63 ± 11.46 mm Hg TCP–: 119.69 ± 12.49 mm Hg, 75.33 ± 9.68 mm Hg Mean Δ systolic and Δ diastolic BP: TCP+: 2.96 ± 18.11 mm Hg, –2.81 ± 11.20 mm Hg TCP–: –8.84 ± 11.31 mm Hg, –10.77 ± 9.14 mm Hg The mean absolute BP for both groups was within the normal physiological range. All BP increases were asymptomatic, no hypertensive crises. No patients discontinued treatment because of hemodynamic events. The data suggest a significant dose-response relationship between TCP dose and systolic BP

Abbreviations: ASD = autism spectrum disorder, BDI = Beck Depression Inventory, BP = blood pressure, bpm = beats per minute, COPD = chronic obstructive pulmonary disease, DM = diabetes mellitus, ECT = electroconvulsive therapy, F = female, HARS = Hamilton Anxiety Rating Scale, HDRS = Hamilton Depression Rating Scale, HDL = hyperlipidemia, HR = heart rate, HTN = hypertension, IN = intranasal, IV = intravenous, M = male, MADRS = Montgomery-Asberg Depression Rating Scale, MAOI = monoamine oxidase inhibitor, MDD = major depressive disorder, MMSE = Mini-Mental State Examination, NSTEMI = non-ST-segment elevation myocardial infarction, OCD = obsessive-compulsive disorder, P = patient, PTSD = posttraumatic stress disorder, QIDS = Quick Inventory of Depressive Symptomatology, SC = subcutaneous, STEMI = ST-segment elevation myocardial infarction, TCP = tranylcypromine, TRD = treatment-resistant depression.