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| Study name | Results | Level of evidence | Number of participants |
| Schenkel et al., 2010 | Though bipolar disorder was allowed for in this cohort, the regression model excluded both bipolar disorder and alcohol abuse as variates | Level 2b | N=120 cases |
|  | Initial univariate analyses showed that sex, BDNF genotype, intent and method of suicide attempt were all risk factors for high lethality in suicide attempts | Level 2b | N=120 cases |
| After logistic regression analysis, male sex (OR =3.03; 95% CI =1.34-6.84; 0.008) and the Met allele (OR =2.62; 95% CI =1.04-6.57; 0.04) were significantly and independently associated with the high lethality in suicide attempts | Level 2b | N=120 cases |
| This showed that a Met carrier state is an independent predictor of high lethality in suicide attempts of MDD patients | Level 2b | N=120 cases |
| Kocabas et al., 2011 | Neither Val66Met nor any of the other 7 SNPs were significantly associated with MDD after permutation correction | Level 2b | N=206 casesN=76 controls |
|  | An association for rs10501087 and Val66Met with non-response to antidepressant treatment was found | Level 2b | N=206 casesN=76 controls |
|  | Combined SNP analysis yielded a significant three-marker combination in the mediation of treatment response (rs10501087, Val66Met, and rs1491850) | Level 2b | N=206 casesN=76 controls |
| Taylor et al., 2011 | At 3-month evaluation, the BDNF Val66Met genotype was not associated with remission in the elderly | Level 2b | N=229 cases |
|  | In the elderly, when not controlling for multiple comparisons, Met allele carriers were more likely to be remitted at 6-months. This effect persisted after controlling for lesion volume and social support | Level 2b | N=229 cases |
| Xu et al., 2012 | The change of depression scoring at week 4 in the SSRI group was significantly different between respective genotype groups, having been significantly higher amongst Met carriers vs. Val/Val homozygotes | Level 2b | N=159 cases |
|  | The rate of response in Met/Met genotype was marginally higher (though reaching statistical significance) than that in Val/Met carriers and Val/Val carriers (89.7 vs. 70.8% and 63%, x2= 5.659, p=0.059) | Level 2b | N=159 cases |
|  | The adjusted odds ratio (OR) for response was 4.85 in Met allele carriers compared with Val/Val genotype carriers | Level 2b | N=159 cases |
|  | No significant difference in improvement was found between BDNF genotype groups in the SSRI-treated group at Week 6 | Level 2b | N=159 cases |
|  | For the venlafaxine (SNRI)-treated group (n = 55), the changes of depression scores after 4 weeks and 6 weeks of antidepressant treatment were not significantly different according to BDNF genotype | Level 2b | N=159 cases |
| Li et al., 2013 | There was a significant association between NTRK2 allele rs1565445 and treatment-resistant MDD (trMDD) with an excess of the T allele in the trMDD group, compared to non-trMDD group (OR = 1.43, 95% CI: 1.16-1.76, p = 0.0008) | Level 2b | N=948 cases |
|  | Patients with genotype C/C and T/C in NTRK2 rs1565445 were less likely to develop trMDD than those carrying T/T (OR = 0.52, 95%CI: 0.33-0.82; OR = 0.72, 95%CI: 0.54-0.97, respectively; p = 0.005) | Level 2b | N=948 cases |
| Illi et al., 2013 | There were no significant differences between the patient group and the control group | Level 2b | N=106 casesN=386 controls |
|  | There were no significant differences in the distribution of the two BDNF polymorphisms in the patient population. Neither in relation to remission nor in relation to response to treatment with an SSRI | Level 2b | N=106 casesN=386 controls |
| Taylor et al., 2013 | The depressed cohort exhibited a significantly greater lesion ratio only in the left upper cingulum near the cingulate gyrus (F((1,86)) = 4.62, p = 0.0344) | Level 2b | N=29 casesN=33 controls |
| BDNF Met allele carriers exhibited greater lesion ratios (only) in the frontal corpus callosum | Level 2b | N=29 casesN=33 controls |
| Different fiber tract lesions may relate to genetic status as well as vascular processes in late-life depression | Level 2b | N=29 casesN=33 controls |
| Colle et al., 2015b | Response as well as remission were explained by Val66Met genotypeSSRI-treated patients with Val/Val genotype had a higher response rate at 3-months post-treatment, than Met carriers (68.1% versus 44%; adjusted-OR: 3.04, CI 95% [1.05; 9.37], p=0.04) | Level 2b | N=345 cases |
|  | In the SNRI/tricyclic antidepressant (TCA) group, Val/Val patients had a lower remission rate 6 months post-treatment vs. Met carriers (33.3% versus 60.9%, adjusted-OR: 0.27, CI 95% [0.09; 0.76], p=0.02) | Level 2b | N=345 cases |
| Ide et al., 2015 | Prefrontal cortex atrophy was associated with the BDNF Val66Met polymorphism in MDD patients | Level 2b | N=38 casesN=42 cases |
|  | No significant differences in overall gray matter volume (Val vs. Met carriers) was demonstrated | Level 2b | N=38 casesN=42 cases |
| Lisiecka et al., 2015 | Met carriers with MDD had increased activation in subcortical regions responsible for visceral reaction to emotional stimuli | Level 2b | N=37 casesN=39 controls |
| Val/Val homozygotes with MDD were associated with having decreased neural activation in areas responsible for cognitive appraisal of emotional scenes | Level 2b | N=37 casesN=39 controls |
| During a depressive episode, Met carriers displayed higher levels of activation in brain areas associated with cognitive appraisal of emotional information in comparison to Val/Val homozygotes | Level 2b | N=37 casesN=39 controls |
| Kautzky et al., 2015 | There was a significant association (62% of patients) of an allelic combination of GG-GG-TT for rs6265 (Val66Met), rs7430 and rs6313 of the BDNF, PPP3CC and HTR2A genes and simultaneous absence of melancholia as a clinical feature with treatment response in a sample of trMDD (vs. 34% in the overall group) | Level 2b | N=225 cases |
| Deflesselle et al., 2017 | No effect of eight NTRK2 SNPs on 6-month treatment response or remission was found | Level 2b | N=569 cases |
| Youssef et al., 2018 | Individuals harboring the Met allele, when analyzing BDNF Val66Met genotype, had an increased risk for depression | Level 2b | N=45 casesN=45 controls |
| MDD patients were found to have lower BDNF levels in the caudal brainstem as well as the anterior cingulate cortex (ACC) than individuals without MDD | Level 2b | N=45 casesN=45 controls |
| No association of history of suicide death or early life adversity (ELA) with genotype was observed | Level 2b | N=45 casesN=45 controls |
| Lower BDNF levels in the ACC were found in subjects who had been exposed to ELA and/or died by suicide compared with non-suicide decedents and individuals with no reported ELA | Level 2b | N=45 casesN=45 controls |
| Martin et al., 2019 | Met carriers had a higher risk of insulin-resistance after antidepressant treatment, indicating the need for insulin resistance screening in antidepressant-treated MDD patients, specifically Met carriers | Level 2b | N=148 cases |
| Zhang et al., 2020b | Looking at several tagSNPs and using a support vector machine learning classifier on 857 patients with recurrent MDD, Zhang et al. Found that adding combined BDNF (BDNF: rs18035210 and rs7124442) + CREB1 SNPs (CREB1: rs2551645 and rs4675690) into the SVM prediction model, significantly increased classification accuracy | Level 2b | N=857 cases |
| Oz et al., 2020 | No association of BDNF cascade polymorphisms with sexual dysfunction in the context of SSRI treatment for MDD | Level 2b | N=133 cases |
| Ramesh et al., 2021 | Treatment responders showed significantly increased serum BDNF levels | Level 2b | N=50 cases |
|  | Val homozygotes showed greater reduction in HAM-D scores that Met carriers | Level 2b | N=50 cases |