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| Study name | Results | Level of evidence | Number of participants |
| Perroud et al., 2009 | BDNF polymorphisms were significantly associated with suicidal ideation. Strongest effect for rs962369 in BDNF (p=0.0015). A significant interaction between variants in BDNF and NTRK2 (p=0.0003) was observed | Level 1b | N=796 cases |
| Dong et al., 2009 | Two common 3’UTR SNPs in NTRK2 were significantly associated with the diagnosis of MDD | Level 1b | N=142 cases |
| Licinio et al., 2009 | 83 novel single-nucleotide polymorphisms (SNPs) were identified: 30 in untranslated regions, 4 in coding sequences, 37 in introns, and 12 in upstream regions; 3 of 4 rare novel coding SNPs were non-synonymous | Level 2b | N=272 cases  N=264 controls |
|  | There was a significant association of 6 SNPs with MDD (rs12273539, rs11030103, rs6265, rs28722151, rs41282918, and rs11030101) | Level 2b | N=272 cases  N=264 controls |
|  | 2 haplotypes in different blocks (one including Val66Met, another near exon VIIIh) were significantly associated with MDD | Level 2b | N=272 cases  N=264 controls |
|  | SNP (rs61888800) was associated with antidepressant response | Level 2b | N=272 cases  N=264 controls |
| Zou et al., 2010a | No significant effect of the BDNF Val66Met polymorphism on efficacy of the SSRI (fluoxetine) | Level 2b | N=294 cases |
| No significant association between the baseline Hamilton Depression Rating Scale (HAM-D) score and the BDNF Val66Met polymorphism | Level 2b | N=294 cases |
| Marginally positive result in favor of remission in heterozygous patients with the Val/Met genotype, which had a significantly higher rate of remission at Week 6 in comparison with the Val/Val genotype | Level 2b | N=294 cases |
|  | Fluoxetine-related side effects of insomnia and decreased sexual desire were significantly mediated by Val66Met, where patients with the Met allele had a significantly lower incidence of the aforementioned adverse events | Level 2b | N=294 cases |
| Chi et al., 2010 | Val homozygotes had a significantly higher chance to respond to venlafaxine, while for treatment with fluoxetine, only a trend for a better treatment response in Val homozygotes existed | Level 1b | N=117 cases |
| Domschke et al., 2010 | BDNF mutations were not associated with MDD as a (categorical) diagnosis | Level 2b | N=268 cases  N=424 controls |
| BDNF rs7124442 TT genotype was significantly associated with a worse treatment outcome over 6 weeks in MDD, particularly in the anxious depression subtype (p=0.003) in the German sample | Level 2b | N=268 cases  N=424 controls |
| BDNF rs7103411 and rs6265 both predicted a worse treatment response over a timeframe of 6 weeks in clinical subtypes of depression such as melancholic depression only (rs7103411: TT<CC; rs6265: GG<AA) | Level 2b | N=268 cases  N=424 controls |
| All SNPs had main effects on antidepressant treatment response in ANOVA models | Level 2b | N=268 cases  N=424 controls |
| The STAR\*D analyses did not result in any significant data for any of the ten BDNF markers | Level 2b | N=268 cases  N=424 controls |
| No support of a general association between genetic variation in BDNF and antidepressant treatment response or remission | Level 2b | N=268 cases  N=424 controls |
| There was preliminary support of a potential minor role for genetic variation in BDNF to play in the melancholic depression subtype in relation to antidepressant treatment outcome in this subtype of MDD | Level 2b | N=268 cases  N=424 controls |
| Tsuchimine et al., 2012 | No significant differences in Montgomery-Åsberg Depression Rating Scale (MADRS) scores or clinical improvement (to paroxetine) related to the BDNF Val66Met polymorphism were found | Level 2b | N=60 cases |
| Laje et al., 2012 | 28% of the variance in ketamine response was attributed to genotype in this sample | Level 2b | N=62 cases |
| Mean baseline and endpoint HAM-D scores for Met carriers were 22.9 and 17.8 | Level 2b | N=62 cases |
| Mean baseline and endpoint scores for Val carriers were 20.8 and 12.2 | Level 2b | N=62 cases |
| The mean percent change in scores (improvement) was 24% for the Met carriers, and 41% for the Val carriers | Level 2b | N=62 cases |
| In the Caucasian group only (n = 58), the mean change was 20% for the Met carriers (n = 18) and 40% for the Val carriers (n = 40) | Level 2b | N=62 cases |
| Brunoni et al., 2013 | BDNF Val66Met polymorphism was not associated with treatment response (transcranial direct current stimulation (tDCS), SSRI, placebo, sham) | Level 1b | N=120 cases |
| The 5-HTTLPR polymorphism (serotonin transporter length polymorphic region) predicted the tDCS effects as long/long homozygotes showed more improvement when comparing the active vs. sham tDCS. The short-allele carriers did not display this effect | Level 1b | N=120 cases |
| Wang et al., 2014 | At the 6-week follow-up, 219 of the 298 patients (73.5%) were responders and 79 patients (26.5%) were non-responders to paroxetine | Level 2b | N=298 cases |
| Allele types for the SNPs rs6265 (P < 0.001), rs2973049 (P = 0.005), and rs2216711 (P = 0.006) demonstrated significant associations with paroxetine treatment remission at Week 6 | Level 2b | N=298 cases |
| Lower threshold concentration for response to paroxetine was 50 ng/mL, plus a linear relationship was detected between paroxetine plasma concentration and clinical response | Level 2b | N=298 cases |
| Fabbri et al., 2014 | In an analysis of pooled data from 3 clinical trials, there was a significant association of BDNF rs11030101 and rs11030104 with treatment response to varying antidepressant treatment | Level 2b | N=285 (European) + 88 (Italian) + 4041 (STAR\*D) |
| Kato et al., 2015 | There was no significant effect of BDNF Val66Met on treatment response to either paroxetine, fluvoxamine or milnacipran | Level 1b | N=168 cases |
| Kreinin et al., 2015 | BDNF Val66Met had no effect on severity of illness, duration of illness or serum levels | Level 2b | N=51 cases  N=38 controls |
|  | They found a gender-specific positive correlation between BDNF serum levels and severe depression amongst untreated women | Level 2b | N=51 cases  N=38 controls |
| Maciukiewicz et al., 2015 | There was no significant association of BDNF Val66Met with treatment response to duloxetine (60mg) vs. placebo in a mostly Caucasian sample | Level 1b | N=215 cases (verum)  N=235 cases (placebo) |
| Fabbri et al., 2017 | In a nested analysis from the STAR\*D trial in almost exclusively Caucasian trMDD patients, the Val allele of Val66Met was associated with remission in patients treated with venlafaxine | Level 1b | N=220 cases |
|  | BDNF rs11030104 SNP A was significantly associated with remission to venlafaxine as well |  |  |
| Schosser et al., 2017 | None of the BDNF polymorphisms and neither haplotypes were associated with suicide risk and life-time history of suicide attempts | Level 2b | N=250 cases |
|  | Val66Met as well as rs10501087 polymorphism (genotypic + haplotypic association) was significantly associated with suicide risk in remitting MDD cases (n=34, 13,6%) | Level 2b | N=250 cases |
| Maffioletti et al., 2019 | There was no influence of Val66Met on treatment response to ECT in trMDD patients | Level 2b | N=74 cases |
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| Brunoni et al., 2020 | Ancillary study to ELECT-TDCS RCT regarding group comparisons (tDCS vs. placebo, tDCS vs. escitalopram and escitalopram vs. placebo) did not find that any alleles were associated with depression improvement | Level 1b | N=195 cases |
|  | Exploratory analyses also did not identify any SNP unequivocally associated with improvement of depression in any treatment group | Level 1b | N=195 cases |
| Peters et al., 2021 | Met carriers had higher baseline resilience scores than Val homozygotes | Level 2b | N=106 cases |
|  | Female Met carriers had higher resilience scores in response to cognitive therapy | Level 2b | N=106 cases |
| Chen et al., 2021a | There were multiple positive associations of SNPs in the BDNF-TrkB cascade with treatment response to low-dose, subanaesthetic ketamine infusions | Level 2b | N=65 cases |
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