Background

Functional outcomes in MDD are increasingly recognized as important and separate from symptom management. Functional deficits are common in MDD, often persist after symptom remission, matter more to patients than symptoms, and are closely linked to disability and societal burden. Therefore, it is important to understand the functional impact of MDD treatments in addition to symptom control. Previously, our group conducted the LIFE-D RCT. 

Methods

We examined secondary functional outcomes in the 8-week randomized, placebo-sham-controlled LIFE-D trial comparing light therapy, fluoxetine, and the combination in patients with nonseasonal MDD. Functional assessments included the Sheehan Disability Scale (SDS) and, for employed participants, the Lam Employment Absence and Productivity Scale (LEAPS).

Change scores from baseline to endpoint were analyzed using a 2 x 2 ANCOVA with light and fluoxetine as independent variables and baseline scores as covariates. This analysis allows detection of main effects of light or fluoxetine while the interaction term evaluates the combined treatment effect. Modified intent-to-treat was used, with last observation carried forward for those with at least a baseline and one subsequent data point.

Results

1. BLT had significant main effects on functional improvements as evaluated by the SDS

   - For the SDS, there was no significant interaction effect of light x fluoxetine.
   - Light showed a significant main effect on SDS Average Score ($F_{1,100}=4.14$, $p<0.05$) with an effect size of Cohen's $d=0.32$. Significant main effects also were found for light on Social Life ($F_{1,100}=6.19$, $p<0.05$) and Family Life/Home Responsibilities ($F_{1,100}=5.05$, $p<0.05$), with effect sizes of $d=0.45$ and $d=0.27$, respectively. No significant main effect of fluoxetine was found.

2. No significant effects were found for either BLT or fluoxetine on LEAPS improvement scores

   - For LEAPS total scores and for productivity subscale scores, there were no significant interaction effects or main effects for fluoxetine.

Discussion

- Effect sizes are medium to large over placebo ($d=0.27$-$0.67$) for light and combination therapy despite significance in SDS scores only.
- Total Improvement scores in SDS scores over placebo (2.61 for combination, 1.56 for light) are similar to those for the best seven antidepressants (2.56-$1.39$) in a 2021 network meta-analysis by Cao, et al.
- Major limitation was limited power from small sample sizes and likely Type II error.
- Missing data was high in the LEAPS due to many unemployed subjects.

Conclusion

Light therapy is likely to improve work and social functioning in patients with MDD, but more study is required. Future studies should use longer treatment durations and be powered to detect clinically relevant differences in functional outcomes.

Reference / Bibliography


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