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Combining Atomoxetine with Alpha, 2 Receptor Agonists Treating ADHD

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Author's contribution

This whole work was carried out by the author HN.

Short Communication

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ABSTRACT

Aims: Atomoxetine (ATX) and Methylphenidate (MPH) are first line agents in treatment of Attention Deficit Hyperactivity disorder (ADHD). ATX focuses on the frontal lobe, where disattention is situated, MPH on the amygdala, where also hyperacticity is situated. Sometimes, especially for ADHD combined type, both drugs are used contemporarily. Since there are some non responders, adjunctive strategies are required. Alpha agonists have a lower effect size than MPH or ATX. There are only scarse data about the effect of a combination of alpha agonists and MPH [1] or ATX [2]. This trial investigates, if a combination of ATX and Clonidine may also provoke related treatment-emergent adverse events, like MPH and Clonidine do.
Study Design: We observed the effect of a combination of ATX and Clonidine in a 12 year old male patient, suffering from ADHD.
Place and Duration: We observed an outpatient for 4 weeks.
Methodology: Clonidine was added to ATX, because of modest tachycardia.
Results: This case report shows that Alpha agonists do not seem to improve ATX/MPH effect, on the contrary, they seem to diminish ATX/MPH efficacy.

Keywords: ADHS; atomoxetine; clonidine.

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1. INTRODUCTION

Sallee et al. [3] describe the benefit of combining Methylphenidate with alpha, 2 receptor agonists. Atomoxetine (ATX), a noradrenaline/norepinephrine reuptake inhibitor has also been developed for Attention Deficit Hyperactivity Disorder (ADHD). Regarding adverse side effects, ATX is safer than MPH [4]. Sometimes MPH, ATX or both of them do not improve ADHD symptoms sufficiently.

Alpha 2 receptor agonists exert their actions through praesynaptic stimulation and facilitate dopamine and noradrenaline transmission [5]. They have been reported to be effective treating ADHD core symptoms. For that reason there is the hypothesis that alpha receptor agonists in combination with ATX could improve ATX`s efficacy.

2. MATERIALS AND METHODS

We tested this hypothesis for a male patient. The 12 year old male patient (weight: 35kg) also diagnosed as ADHD without any comorbidities like depression or anxiety disorder according to the practice parameters of the American Academy of Child and Adolescence psychiatry, including EEG, blood sample, magnetic resonance tomography, psychological tests (WISC IV: IQ=103) and 18 item Conner Scales, where ATX (72 mg daily, administered for 3 months) led to remarkable improvement (Conner score (maximum 54, cut-off 27; initial score 30, with atomoxetine 17)). The 20 item Beck Depression Inventory (BDI) Score (maximum score 60, cut-off 11) was 13 before ATX treatment, and improved to 7.

Because of modest tachycardia, the patient received additional therapy with an alpha 2 receptor agonist.

3. RESULTS

Under additive administration of Clonidine (0.015mg daily, administered for 4 weeks), tachycardia disappeared but ADHD symptomatology remained unchanged in combination with ATX. Under ATX in combination with Clonidine, the BDI score remained unchanged.

4. CONCLUSION

These data are in accordance with those of Sallee [3], who described fatigue and lethargy, if MPH was combined with Clonidine. The combination of Clonidine with ATX did not affect depressive symptoms. Altogether, it can be assumed that, in case of MPH related treatment-emergent adverse events (TEAEs) like lethargy, fatigue and depression, MPH should not be combined with an alpha 2 receptor agonist like Clonidine. This result is also in accordance with that of Nazir et al. [6], who report that Clonidine may provoke MPH`s adverse side effects such as seizures. In that trial, discontinuation of MPH improved this symptom and did not provoke further ictal activity.

When combining clonidine with MPH, the lethargy, fatigue and depression enhancing effect of clonidine seems to augment that of MPH and vice versa.

If MPH`s effect is insufficient, a combination also with neuroleptics or antidepressants could be helpful, as Sallee [3] reports.

The combination of ATX and clonidine does not seem to provoke TEAEs and does not seem to modify ATX`s effect. To date, there are no reports about the combination of ATX and neuroleptics but a comparable effect to that of MPH and neuroleptics can be assumed.

The gender-dependence (only a boy was included!)), the small sample size and the short observation and follow-up period as well as possible confunding variables for the elevation of the depression score are the main limitations of our observation. Furthermore, these scarse data do not allow any generalization, i.e. any suggestion, if the same effects could be observed if ATX is combined with other alpha 2-receptor agonists like e.g. Guanfacin.

COMPETING INTERESTS

Author has declared that no competing interests exist.

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