Effects of Second Generation Antipsychotics on cognitive domains measured with the MATRICS Consensus Cognitive Battery in early psychoses

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INTRODUCTION

Cognitive impairments, which are present at early stages of psychoses, are related to low functional outcomes [1]. Second generation antipsychotics may have different effects on cognition, although this remains uncertain [2]. The purpose of the present study was to compare the effect of different second generation antipsychotics on the cognitive performance in patients with a first episode of psychosis.

REFERENCES

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METHODS

We included 54 subjects (46.3% female patients; main age 24.5 [standard deviation= 5.2]) with a psychotic disorder with a duration of illness <5 years, attending the Early Psychosis Program from Reus (Tarragona, Spain). A structured clinical interview (Schedules for Clinical Assessment in Neuropsychiatry, SCAN) was used to obtain a clinical diagnosis. Severity of psychotic symptoms was assessed with the PANSS. The MATRICS Consensus Cognitive Battery (MCCB)[3] was administered to evaluate cognitive function in all patients. This battery includes ten neuropsychological tests to assess seven cognitive domains commonly examined in studies of schizophrenia (Speed of Processing [SOP], Attention/Vigilance [AV], Working Memory, Verbal learning, Visual Learning, Reasoning and Problem Solving [RPS] and social Cognition) and the Overall Composite Score. Current antipsychotic treatment was requested. Biperden and benzodiazepine (diazepam equivalents) doses were also registered.

Statistical analyses were performed with SPSS v.17.0. ANOVA was used to compare MCCB T-scores for each cognitive domain by antipsychotic groups. We conducted a multiple linear regression analysis to further explore the relationship between antipsychotic doses and neurocognitive domains after excluding those subjects on polytherapy. For each cognitive domain, the T-scores (corrected for age and gender) were considered the dependent variable. Antipsychotic drugs were included in the equation as three independent variables (risperidone/paliperidone, aripiprazole and olanzapine), as well as biperden and diazepam doses. All these variables were included in each model with the enter procedure. Standardized beta coefficients are shown in the results section.

RESULTS

The mean (standard deviation) PANSS scores of the sample were: PANSS-P= 10.2 (3.8) ; PANSS-N= 14.5 (5.4); PANSS-G= 24.9 (7.4). There were no significant differences in PANSS scores between treatments. Of all patients, 10 were not receiving antipsychotic drugs, 36 were on monotherapy (17 risperidone/paliperidone, 13 olanzapine, 6 aripiprazole) and 8 on polytherapy. Antipsychotic drug doses were transformed into equivalents of chlorpromazine (in mg per day).

MCCB T-scores by antipsychotic groups are described in Table. Subjects with olanzapine performed better than those subjects on polytherapy in SOP, AV and visual learning. In AV, those subjects on olanzapine performed better than those with risperidone/paliperidone.

In the multiple regression analyses, adjusted by diazepam and biperden, olanzapine was significantly associated to a better performance in SOP (B=0.383, p=0.032), visual learning (B=0.394, p=0.029), and RPS (B=0.477 , p=0.007). Risperidone or paliperidone were associated with a poorer cognitive performance in the AV domain (B=-0.400, p=0.041). We found no significant differences related to the Overall Composite Score, although olanzapine showed a trend towards significance (B= 0.356, p=0.062)

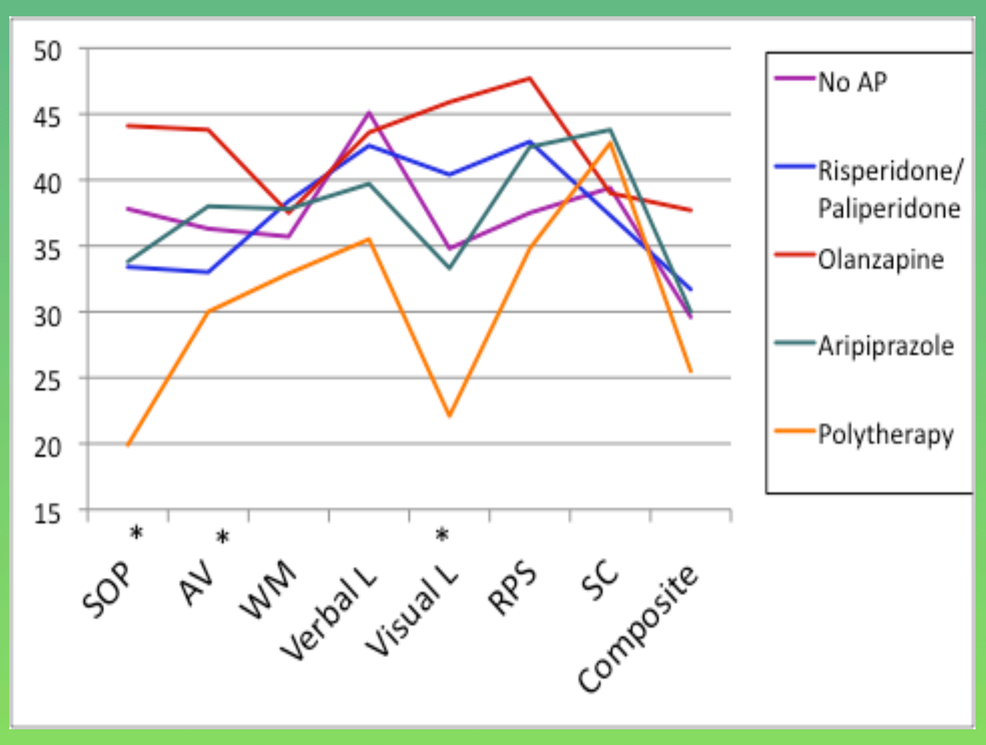

Table. Comparison of MCCB Cognitive Domains (T-scores) by antipsychotic groups.

	GROUP 1 No AP n=10	GROUP 2 Risperidone/ Paliperidone n=17	GROUP 3 Olanzapine n=13	GROUP 4 Aripiprazole n= 6	GROUP 5 Polytherapy n= 8	One-way ANOVA p value	One-way ANOVA Significant Post-Hoc Tests (Bonferroni adjustment)
SOP	37.8 (14.2)	33.4 (7.7)	44.1 (9.2)	33.8 (10.1)	19.9 (11.3)	**<0.001**	Group 1>5 and 3>5
AV	36.3 (8.6)	33.0 (7.4)	43.8 (9.8)	38.0 (8.2)	30.0 (6.2)	**0.004**	Group 3>2 and 3>5
WM	35.7 (8.9)	38.4 (9.0)	37.5 (7.5)	37.8 (8.1)	32.9 (13.3)	0.696	None
Verbal L	45.1 (10.2)	42.6 (5.5)	43.6 (9.5)	39.7 (7.3)	35.5 (3.9)	0.089	None
Visual L	34.8 (13.0)	40.4 (9.3)	45.9 (8.5)	33.3 (9.9)	22.1 (11.2)	**<0.001**	Group 2>5 and 3>5
RPS	37.5 (8.9)	42.9 (10.1)	47.7 (9.6)	42.5 (6.3)	34.8 (6.0)	**0.031**	None
SC	39.4 (11.4)	37.3 (11.1)	39.0 (13.0)	43.8 (11.4)	42.8 (5.6)	0.747	None
Composite	29.6 (11.8)	31.7 (7.3)	37.7 (8.4)	30.0 (10.9)	25.5 (4.5)	0.117	None

Data are Mean (Standard Deviation).

CONCLUSIONS

Our results suggest that olanzapine has a better cognitive profile than other second generation antipsychotics. Of all cognitive domains, Speed of Processing, Attention/Vigilance, Visual Learning and Reasoning and Problem Solving seem to be more clearly affected by antipsychotic treatment.

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