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•Original research article•

Prospective 8-week trial on the effect of olanzapine, quetiapine, and aripiprazole on blood glucose and lipids among individuals with first-onset schizophrenia

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Background: Metabolic symptoms induced by antipsychotic medication have been widely documented but there have been few studies comparing the effect of commonly used atypical antipsychotics on blood glucose and lipids among individuals with first-onset schizophrenia.

Methods: A total of 150 patients with first-onset schizophrenia were randomized into three groups and each group was treated with olanzapine, quetiapine, or aripiprazole for eight weeks. Blood glucose and lipids (including levels of triglyceride, total cholesterol, low-density lipoprotein, and high-density lipoprotein) were tested at baseline and at the end of the 8 weeks of treatment.

Results: Fasting blood glucose increased significantly over the 8 weeks in the olanzapine group but not in the quetiapine or aripiprazole groups. Based on a repeated measures analysis of variance, triglyceride levels increased significantly over the 8 weeks of treatment and high-density lipoprotein decreased significantly over the 8 weeks of treatment. The increase in triglyceride in the olanzapine and quetiapine groups was greater than that in the aripiprazole group, and the decrease in high-density lipoprotein was greater in the olanzapine and quetiapine groups than in the aripiprazole groups.

Conclusions: During the first 8 weeks of treatment of drug-naïve patients with schizophrenia, olanzapine has a greater effect on blood glucose than quetiapine or aripiprazole, and both olanzapine and quetiapine have a greater effect on blood lipids than aripiprazole.

Keywords: schizophrenia; first-episode; antipsychotic medication; lipid metabolism; carbohydrate metabolism; olanzapine; quetiapine; aripiprazole; China

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1. Background

The best current treatment option for schizophrenia is the long-term use of antipsychotic medication. However, it has been widely documented that long-term use of antipsychotic medications can induce metabolic symptoms – including weight gain, glucose intolerance, elevated blood glucose, and unhealthy blood lipid profiles[1-3] – that are closely associated with cardiovascular diseases and diabetes.[4-9] These side effects put patients at risk for serious medical conditions and are common reasons for non-adherence. Psychiatric clinicians need to understand these risks, monitor metabolic parameters in patients being treated with antipsychotic medications, and know what to do when a patient develops abnormal metabolic symptoms during the course of drug treatment.

It is generally accepted that among the commonly used antipsychotic agents clozapine has the greatest effect on metabolic parameters.[10-12] There is, however, ongoing debate about the relative risk of metabolic abnormalities of other commonly used second-generation antipsychotic medications, particularly in first-onset, drug naïve patients. The current study aims to assess the short-term effect of three commonly used atypical antipsychotics – olanzapine, quetiapine, and aripiprazole—on the blood glucose and lipid profile of first-episode, drug naïve patients with schizophrenia.

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2. Methods

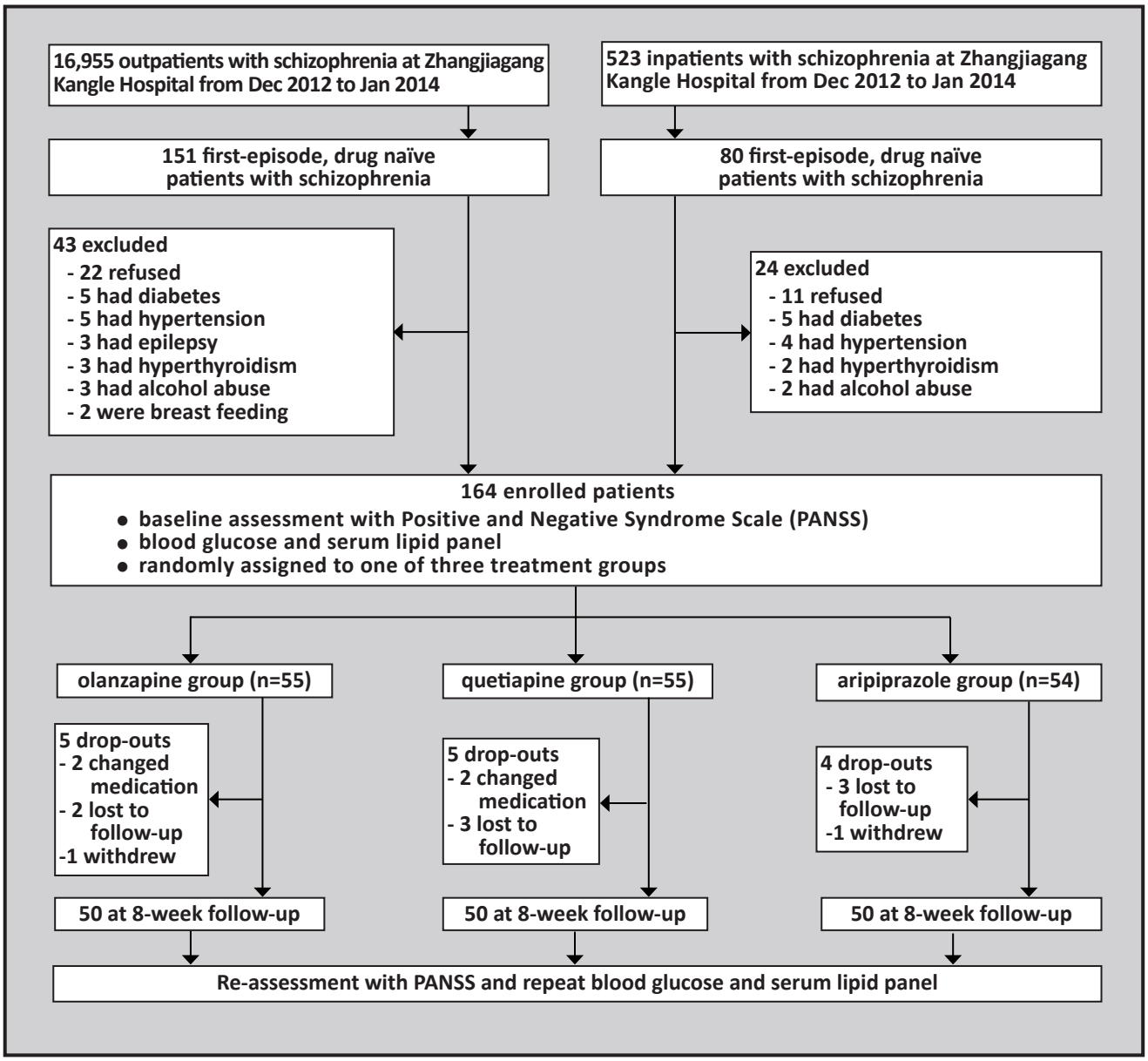
2.1 Sample

The flowchart for the study is shown in Figure 1. Participants were individuals with schizophrenia seeking treatment at Zhangjiagang Kangle Hospital from December 2012 to January 2014. Based on the inclusion criteria, eligible participants: (a) met the diagnostic criteria for schizophrenia based on the *3rd edition of the Chinese Classification of Mental Disorders* (CCMD-3);[13] (b) had a total score of >60 on the Positive and Negative Syndrome Scale (PANSS);[14] (c) had never been treated with antipsychotic medication; (d) had a duration of illness ≤5 years; (e) were 17 to 60 years of age; (f) had normal functioning heart, liver, and kidneys; and (g) provided written informed consent (or the guardian provided written informed consent) to participate in the study. Individuals were excluded if they: (a) had a mental disorder induced by endocrine dysfunction (e.g., thyroid dysfunction); (b) were pregnant or breast feeding; (c) had a history of alcohol or drug dependence; or (d) took medications that could influence metabolism including glucocorticoids, diuretics, or contraceptives.

As shown in Figure 1, a total of 151 outpatient and 80 inpatient first-episode, drug naïve patients with schizophrenia were identified; 33 (14%) refused to participate and a further 34 were excluded for various reasons (shown in the figure). This left 164 patients who were enrolled in the study and randomly assigned (using a random number table) to one of three treatment groups: the olanzapine, quetiapine, or aripiprazole treatment group.

There were a total of 14 dropouts (8.5%) during the 8-week trial: 5 patients dropped out of the olanzapine group (2 changed medications due to financial reasons during week 4, 2 were discharged from hospital in week 4 and did not come back for follow-up, and 1 withdrew in week 5 due to poor treatment effect); 5 from the

Figure 1. Flowchart for the study



quetiapine group (2 were given other medications to manage their violent behaviors in week 1, and 3 were discharged from the hospital in week 3 and did not come back for follow-up); and 4 from the aripiprazole group (3 were discharged from hospital in week 3 and lost to follow-up, and 1 withdrew in week 3 due to poor treatment effect). There were no significant differences in the dropout rate between the three groups. Dropouts were not included in our analysis, so the size of the sample included in the analysis was 150 individuals, 50 from each of the three groups.

2.2 Procedures

2.2.1 Clinical assessment

The clinical status of all participants was assessed using the Positive and Negative Syndrome Scale (PANSS) at the time of enrollment and at the end of the 8-week trial. This assessment was conducted by two senior psychiatrists who had received training in the use of the PANSS and were blind to the treatment status of the patients; their inter-rater reliability when simultaneously evaluating 6 patients was good (Kappa=0.88).

2.2.2 Antipsychotic treatment regimen

The dosage of antipsychotic medication started with the minimum, increased gradually according to the condition of the patient, and usually reached the initial therapeutic dosage within a week. Patients were maintained on this therapeutic dosage until the end of the 8-week trial. During the study period no other antipsychotic medications were used but benzodiazepines and anticholinergics were used when considered necessary by the treating clinician.

2.2.3 Laboratory tests

Fasting blood samples (4ml) were collected from all participants at 08:00 on the second day after recruitment and at the end of the 8-week trial. Blood glucose, total cholesterol, triglycerides, low-density lipoprotein, and high-density lipoprotein were measured using a BS-400 automated biochemical analyzer with kits produced by Shenzhen Mindray Medical International Ltd. The normal range of these measures in our setting are: 3.6-6.3 mmol/L for blood glucose, 2.8-6.2 mmol/L for total cholesterol, 0.41-1.88 mmol/L for triglyceride, 0-3.12 mmol /L for low-density lipoprotein, and 0.82-1.96 mmol/L for high-density lipoprotein.

2.3 Statistical methods

All analyses were conducted using SPSS 19.0 statistical software. The PANSS score, PANSS subscale scores (for positive symptoms, negative symptoms, and general psychopathology), blood glucose level, and lipid levels (triglyceride, total cholesterol, low-density lipoprotein, and high-density lipoprotein) were compared between the three treatment groups at baseline and at the 8-week follow-up using univariate analysis of variance (ANOVA) if normally distributed or Kruskal-Wallis tests if non-normal. The paired before- versus after-treatment results of these measures for each of the three groups were compared using paired t-tests for normally distributed variables or Wilcoxon signed-rank tests for non-normal variables. The mean change values for the glucose and lipid measures between the three groups were compared using univariate ANOVA or Kruskal-Wallis tests. Post-hoc multiple comparisons of cross-group differences were conducted using the least significant difference (LSD) method for normally distributed variables and the Nemenyi test[15] for non-normal variables. Finally, a repeated measures ANOVA was conducted to consider cross-group differences over time. All tests were two-sided and $p<0.05$ was considered statistically significant.

This study was approved by the ethics committee of the Zhangjiagang Kangle Hospital.

3. Results

3.1 Comparison at the baseline

Table 1 shows the comparisons of demographic and clinical characteristics across the three groups at baseline. There were no statistically significant differences between the three groups with respect to gender, proportion of inpatients, age, duration of illness, or severity of illness (as measured by the PANSS total score). As expected, the 47 inpatients had a higher mean (sd) baseline PANSS score than the 103 outpatients (94.5 [15.5] v. 88.7 [13.2], t=2.36, p=0.020), but there was no significant difference in the baseline PANSS scores between the inpatients in the three treatment groups or between the outpatients in the three groups.

3.2 Use of the medications during the trial

The mean (sd) therapeutic dosage of olanzapine over the 8-week trial was 18.1 (3.0) mg/d with a maximum dosage of 20 mg/d. The mean therapeutic dosage of quetiapine was 598 (147) mg/d with a maximum dosage of 750 mg/d. And the mean therapeutic dosage of aripiprazole was 16.4 (3.2) mg/d with a maximum dosage of 20 mg/d. For all three groups the mean therapeutic dosage during the 8-week trial among 47 individuals who were enrolled as inpatients (10 of whom had been discharged and were followed-up as outpatients at the end of the 8 weeks) was higher than the mean dosage among individuals who were enrolled as outpatients, but none of the differences were statistically significant: in the olanzapine group the mean (sd) dosage in the 14 inpatients was 19.3 (1.8) mg/d versus 17.6 (3.3) mg/d in the 36 outpatients (Mann-Whitney Z=1.72, p=0.086); in the quetiapine group the mean dosage in the 18 inpatients was 639 (154) versus 575 (140) mg/d in the 32 outpatients (Z=1.87, p=0.062); and in aripiprazole group the mean dosage in the 15 inpatients was 17.7 (2.6) mg/d versus 15.9 (3.3) mg/d in the 35 outpatients (Z=1.77, p=0.077).

No significant side effects were reported for any of the study participants, but two subjects (one from the olanzapine group and one from the aripiprazole group) withdrew after five weeks of treatment due to unsatisfactory treatment response.

Table 1. Comparison of demographic and baseline clinical characteristics of study participants in the three treatment groups (n=50 for each group)

	olanzapine	quetiapine	aripiprazole	statistic	*p*
Mean (sd) age in years	41.2 (13.3)	40.2 (12.0)	41.7 (13.7)	F=0.18	0.839
Male (n, %)	34 (68%)	33 (66%)	31 (62%)	χ^2=0.41	0.814
Inpatient (n, %)	14 (28%)	18 (36%)	15 (30%)	χ^2=0.67	0.716
mean (sd) duration of disease in months	23.4 (19.2)	21.0 (18.3)	23.1 (18.5)	F=0.25	0.777
mean (sd) PANSS total score at baseline	89.1 (14.2)	88.8 (15.2)	93.7 (12.8)	F=1.87	0.158
mean (sd) PANSS total score among outpatients	87.2 (13.0) (n=36)	88.5 (15.5) (n=32)	90.5 (11.2) (n=35)	F=0.56	0.573
mean (sd) PANSS total score among inpatients	94.0 (16.4) (n=14)	89.4 (15.2) (n=18)	101.1 (13.4) (n=15)	F=2.51	0.093

PANSS, Positive and Negative Syndrome Scale

3.3 Changes in symptoms, blood glucose and lipids over the 8-week trial

The univariate results are shown in Table 2. There was a significant drop in the total PANSS score and in the three PANSS subscale scores over the 8-week treatment period in all three medications groups, but there were no significant differences between the groups either at baseline or at the 8-week follow-up. Fasting blood glucose increased significantly in the olanzapine group but not in the other two medication groups, so the final level was significantly different across the three treatment groups (using Kruskal-Wallis test to compare the non-normal results in the three groups). Triglyceride levels increased significantly in both the olanzapine and quetiapine groups, but the increase in the aripiprazole group was non-significant, so the final levels were significantly different between the three groups. Total cholesterol had non-significant increases in the olanzapine and quetiapine groups but was unchanged in the aripiprazole group; there were, however, significant differences in the final level in the three groups. The low-density lipoprotein experienced a modest increase in the olanzapine and quetiapine groups and a modest decrease in the aripiprazole group but the differences in the three groups were not statistically significant at the end of the trial. The high-density lipoprotein levels decreased significantly in the olanzapine and quetiapine groups but not in the aripiprazole group; at the end of the trial the differences between groups was not statistically significant.

Table 3 compares the magnitude of the change between the three groups in the before versus after values of the glucose and lipid measures. This analysis adjusts for differences in the baseline values between the groups and, thus, generates a somewhat different picture from that seen in the results at each time. There are significant differences between the three treatment groups in the magnitude of change over the 8 weeks in the level of fasting glucose, triglycerides, and high-density lipoprotein. But there were no significant differences between groups in the changes in total cholesterol or low-density lipoprotein. Comparing the ranked differences in the fasting glucose levels between the three groups using the Nemenyi test found that the increase in the olanzapine group (mean rank=94.5) was significantly greater that in aripiprazole group (mean rank=66.8) (p<0.01) or that in the quetiapine group (mean rank=65.2) (p<0.01). Using the Nemenyi test to compare differences in the mean rank for triglyceride levels found that the increase in the olanzapine group (mean rank=84.5) was significantly greater than that in the aripiprazole group (mean rank=62.2) (p<0.05). Using the LSD method to compare mean serum levels of high-density lipoprotein (which were normally distributed) between groups found that the decrease in high-density lipoprotein in the olanzapine group was significantly greater than that the quetiapine and aripiprazole groups (p=0.040 and 0.001, respectively).

Table 4 shows the results of the repeated measures ANOVA analysis that simultaneously considers the time variable, the group variable, and the interaction term for time and group. (a) As shown in the univariate analysis, in the repeat measures ANOVA the PANSS total score and the three PANSS subscale scores were significantly different at the two time points (all decreased substantially over the 8 weeks), but there were no significant differences between the three treatment groups at either time point and no significant differences in the change in scores over time between the three treatment groups (i.e., the time*group interaction term was non-significant). (b) Fasting blood glucose and total cholesterol had significant differences between the three treatment groups but neither the difference in the overall mean at the two time periods nor the difference in the magnitude of the change in the three groups were statistically significant. (c) Triglyceride levels increased over the 8 weeks of treatment and high-density lipoprotein decreased over the 8 weeks of

Table 2. Comparisons of before versus after mean (sd) measures for each of the three groups and univariate comparison of the three groups at each time point (n=50 in each group)

Measure	time point	pre- versus post-treatment comparison			comparison of 3 groups	
		olanzapine	quetiapine	aripiprazole	statistic[d]	*p*
fasting blood glucose	before treatment	4.87 (0.99)	4.62 (1.00)	4.65 (1.14)	χ^2=2.93	0.232
	after treatment	5.49 (1.51)[a]	4.59 (0.79)	4.74 (1.74)	χ^2=30.39	**<0.001**
triglyceride	before treatment	1.15 (0.63)	0.94 (0.53)	1.05 (0.53)	χ^2=5.33	0.070
	after treatment	1.95 (1.50)[a]	1.70 (1.72)[a]	1.26 (0.80)	χ^2=8.82	**0.012**
total cholesterol	before treatment	4.57 (1.23)	4.16 (1.17)	4.11 (0.96)	χ^2=5.13	0.077
	after treatment	4.72 (1.12)[b]	4.49 (1.25)	4.11 (1.04)[b]	*F* =3.72	**0.027**
low-density lipoprotein	before treatment	3.15 (1.09)	3.03 (1.01)	2.93 (0.80)	χ^2=0.67	0.716
	after treatment	3.23 (0.78)[c]	3.19 (0.80)	2.85 (0.83)[b]	χ^2=5.21	0.074
high-density lipoprotein	before treatment	1.45 (0.42)	1.32 (0.36)	1.32 (0.33)	χ^2=3.30	0.192
	after treatment	1.19 (0.31)[a]	1.19 (0.32)[a]	1.30 (0.31)	*F* =2.16	0.119
PANSS total score	before treatment	89.08 (14.24)	88.84 (15.19)	93.68 (12.76)	*F* =1.87	0.158
	after treatment	53.10 (15.86)[a]	54.44 (15.09)[a,b]	54.64 (16.29)[a,b]	χ^2=0.24	0.886
PANSS positive symptoms score	before treatment	22.80 (5.97)	20.82 (8.2)	22.58 (5.69)	*F*=1.04	0.357
	after treatment	12.70 (5.55)[a]	12.18 (5.19)[a]	12.48 (4.79)[a]	χ^2=0.30	0.863
PANSS negative symptom score	before treatment	26.12 (7.86)	28.72 (7.25)	29.12 (6.16)	χ^2=4.85	0.089
	after treatment	15.08 (7.46)[a]	16.78 (7.20)[a]	16.48 (7.62)[a]	χ^2=1.42	0.492
PANSS general psychopathology score	before treatment	40.12 (5.94)	39.76 (6.11)	42.10 (6.01)	χ^2=4.49	0.106
	after treatment	25.34 (5.55)[a]	25.94 (4.68)[a,b]	25.36 (5.61)[a]	χ^2=4.49	0.106

PANSS, Positive and Negative Syndrome Scale
[a] before v. after comparison statistically significant at $p<0.01$ level
[b] comparisons of before-versus after values using paired t-test; all other comparisons used Wilcoxon signed-rank test
[c] before v. after comparison statistically significant at $p<0.05$ level
[d] comparison across the 3 groups uses univariate ANOVA for normally distributed variables and Kruskal-Wallis test for non-normal variables

Table 3. Comparisons of mean (sd) magnitude of before versus after changes in blood glucose and lipid levels after 8 weeks of treatment with olanzapine, quetiapine, and aripiprazole (n=50 for each group)

	olanzapine [O] mean (sd)	quetiapine [Q] mean (sd)	aripiprazole [A] mean (sd)	statistic[a]	*p*	multiple comparisons[b]
fasting blood glucose	0.61 (1.36)	-0.03 (0.97)	0.08 (1.97)	X^2=14.41	**0.001**	**O>A,Q**
triglyceride	0.81 (1.48)	0.77 (1.43)	0.22 (0.72)	X^2=7.37	**0.025**	**O,Q>A**
total cholesterol	0.15 (1.19)	0.34 (1.11)	-0.01 (0.99)	X^2=1.26	0.532	---
low-density lipoprotein	0.08 (0.99)	0.15 (0.80)	-0.08 (0.68)	X^2=3.20	0.202	---
high-density lipoprotein	-0.26 (0.35)	-0.14 (0.26)	-0.02 (0.28)	*F*=7.90	**<0.001**	---

[a] Kruskal-Wallis test was used for non-normally distributed data

[b] If the difference of the three groups was significant, post-hoc pairwise comparisons were conducted using the least significant difference (LSD) method for normally distributed variables and the Nemenyi test for non-normal variables

Table 4. Results of repeated measures ANOVA of pre- and post-treatment assessment of measures in patients treated for 8 weeks with olanzapine, quetiapine, or aripiprazole (n=50 for each group)

Measure	factor	*F*	*p*
fasting blood glucose	time	3.37	0.069
	group	4.89	**0.009**
	time*group	2.63	0.075
triglyceride	time	33.76	**<0.001**
	group	2.69	0.071
	time*group	3.39	**0.036**
total cholesterol	time	3.22	0.075
	group	3.70	**0.027**
	time*group	1.22	0.299
low-density lipoprotein	time	0.62	0.432
	group	1.90	0.153
	time*group	1.01	0.369
high-density lipoprotein	time	32.74	**<0.001**
	group	0.66	0.517
	time*group	7.90	**0.001**
PANSS total score	time	1005.70	**<0.001**
	group	0.77	0.465
	time*group	1.40	0.249
PANSS positive symptom score	time	467.32	**<0.001**
	group	0.780	0.461
	time*group	1.20	0.305
PANSS negative symptom score	time	471.54	**<0.001**
	group	1.89	0.155
	time*group	0.72	0.490
PANSS general psychopathology score	time	859.83	**<0.001**
	group	0.67	0.512
	time*group	2.78	0.065

PANSS, Positive and Negative Syndrome Scale

treatment, and the rate of change varied significantly between the three treatment groups. (d) There were no significant differences over time or between the three treatment groups in the level of low-density lipoprotein.

4. Discussion

4.1 Main findings

This study found that two key measures of blood lipids – triglycerides and high-density lipoproteins -- of first-episode, drug naïve patients with schizophrenia treated with 8 weeks of aripiprazole were less negatively affected than those of similar patients treated with 8 weeks of olanzapine or quetiapine. These findings are in line with several previous studies: Tang and colleagues[12] showed that olanzapine can increase serum triglycerides levels; Zhong and colleagues[16] reported that aripiprazole did not induce significant changes in blood glucose or blood lipids among female first-onset patients with schizophrenia; and Fan and colleagues[17] found that quetiapine induced weight gain and increased blood lipid levels while aripiprazole did not significantly influence body mass index or blood levels of triglyceride or total cholesterol.

Total cholesterol includes low-density lipoprotein (which has been linked to a higher risk of cardiovascular diseases) and high-density lipoprotein (which has been shown to have a protective effect for cardiovascular diseases). In order to assess the effects of antipsychotic medications on these two types of blood lipids, we separately tested the levels of total cholesterol, low-density lipoprotein, and high-density lipoprotein in this study. We found that the different antipsychotic medications had differential effects on the different component measures of cholesterol. Specifically, aripiprazole did not induce changes in either low-density lipoprotein or high-density lipoprotein while olanzapine and quetiapine treatment over 8 weeks lowered blood levels of high-density lipoprotein.

The PANSS scores showed significant reduction over time and the magnitude of this reduction did not differ between the three treatment groups; that is, in the repeated measures ANOVA the group main effect and the time by group interaction were not statistically significant. Therefore, the treatment effect was similar across the three groups.

4.2 Limitations

The study did not include a placebo control group, but an individual's fasting blood glucose and blood lipid levels do not usually vary much over an eight-week period so it is reasonable to assume that observed changes in the three treatment groups were, in fact, the results of using the different types of antipsychotic medication. However, the relatively short follow-up period of 8 weeks does limit the relevance of the results to standard clinical care, which typically involves the continuous use of antipsychotic medication for years. It is, for example, certainly possible that the negative effects of olanzapine on glucose and lipid metabolism also occur in patients taking aripiprazole a couple of months after starting the medication. Thus, long-term studies are needed to assess the persistence of our 8-week findings.

We included both inpatients and outpatients whose living environment, levels of physical activity, and diet differed substantially. These differences may influence the metabolism-related indicators we assessed in the study. But the randomization balanced the numbers of inpatients and outpatients in the three groups, so, even if there were differences between inpatients and outpatients, it is unlikely that this would have changed our observed differences between the three medication groups.

Similarly, we did not consider other important personal characteristics that may affect an individual's metabolism, including baseline body-mass index, history of diabetes, hyperglycemia, and family history of obesity. We presume that these potential confounders were randomly distributed across the groups and, thus, did not affect the main outcome. There are, however, potential interactions between these factors and the effects of antipsychotic medications that merit further investigation.

The sample consists of treatment naïve individuals and therefore is free of any residual effect of antipsychotics. However, it is not clear if the results can be extended to individuals who had previously used antipsychotic medication.

We did not formally test non-metabolic side effects in the three drug groups using a structured scale. There were no side effects that required clinical intervention but we may have missed less severe side effects that could affect adherence.

Finally, a comprehensive, long-term cost-effective-ness analysis that includes the treatment and social costs of the metabolic syndrome is needed to demonstrate the economic and social benefits of selectively treating patients with antipsychotic medications that have the lowest risk of developing glucose and lipid abnormalities.

4.3 Implications

We found that during the first 8 weeks of treatment of first-episode, drug naïve patients with schizophrenia the therapeutic effect of three commonly used antipsychotic medications – olanzapine, quetiapine, and aripiprazole – is similar. However the effect of these medications on glucose and lipid metabolism over the 8-week period was quite different. Generally speaking, aripiprazole had a better glucose and lipid profile after 8 weeks of treatment than olanzapine or quetiapine. This suggests that, all other things being held equal, it would be better to start treatment of first-episode patients with aripiprazole (particularly patients who have a family history of diabetes or cardiovascular diseases) and to convert patients who develop glucose or lipid abnormalities while using other antipsychotic medications to aripiprazole. However, this result is based on only 8 weeks of follow-up and on the comparison of only three of the many antipsychotic medications available. Further work is needed to determine differences in glucose and lipid metabolism between a wider range of medications and, most importantly, over a much longer time period.

It may never be possible to achieve maximum clinical effectiveness without risking the occurrence of serious side effects. In the interim while researchers continue their search for optimal individualized treatments, clinicians need to be on the front line in reducing the prevalence of these serious, life-threatening adverse reactions to antipsychotic medications. Clinicians who treat patients with psychotic disorders need to (a) routinely make a detailed assessment of risk factors for diabetes and cardiovascular diseases at the time of initial diagnosis, (b) be more vigilant about the emergence of metabolic changes during treatment with antipsychotic medications, (c) routinely advise patients and their family members to seek help if metabolic-like symptoms appear, (d) more regularly monitor fasting glucose and blood lipid levels,[18,19] and (e) take rapid corrective action when abnormalities occur.

Conflict of interest

Authors declare that they have no conflict of interest related to this study.

Funding

This study was not funded by any agency.

Ethical review

This study was approved by the ethics committee at the Zhangjiagang Kangle Hospital.

Informed consent

All participants or their guardians provided written informed consent to participate in this study.

奥氮平、喹硫平或阿立哌唑治疗 8 周对首发精神分裂症患者血糖和血脂影响的前瞻性研究

张淑芬， 兰光华

背景：抗精神病药物引起代谢症状已广为报道，但很少有研究比较常用非典型抗精神病药物对首发精神分裂症患者血糖和血脂影响。

方法: 共 150 例首发精神分裂症患者，被随机分为三组，分别使用奥氮平、喹硫平或阿立哌唑治疗 8 周。在基线和 8 周治疗结束时测定血糖和血脂（包括三酰甘油、总胆固醇、低密度脂蛋白及高密度脂蛋白水平）水平。

结果：治疗 8 周后奥氮平组空腹血糖显著升高，但是喹硫平组和阿立哌唑组空腹血糖均无明显升高。基于重复测量方差分析，经过 8 周治疗，三酰甘油水平显著升高而高密度脂蛋白水平显著降低。奥氮平组和喹硫平组两组的三酰甘油的升高程度以及高密度脂蛋白的下降程度均比阿立哌唑组明显。

结论：精神分裂症患者初次使用药物治疗的前 8 周，奥氮平对血糖水平的影响大于喹硫平或阿立哌唑，而对血脂水平的影响则是奥氮平和喹硫平大于阿立哌唑。

关键词：精神分裂症；首次发病；抗精神病药物；脂质代谢；碳水化合物代谢；奥氮平；喹硫平；阿立哌唑；中国

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