



Impact of an outpatient dietary intervention on antipsychotic-induced weight gain

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Abstract

Background: Antipsychotic induced weight gain occurs frequently and may lead to obesity. In this field, long term impacts of dietary treatment remain unknown. Objective: the aim of this study was to assess long term weight evolution in relation to initial weight changes in order to better predict potential benefits of continuation or interruption of dietary treatment. Method: We reviewed the charts of twelve outpatients treated by antipsychotics and followed by a dietician for at least six months. Results: Increase of body mass index during the first 6 months seems to predict further and/or sustained weight gain. Patients were classified as either weight losers or weight gainers and their classifications compared at months 3, 6, 9, 12, 15, 18, 21 and 24. Conclusions: The 6 month classification was found to be the best predictor of the weight loser/weight gainer proportion in the following 9 months.

Key words

Antipsychotic agents, weight gain, dietary intervention, psychosis

Introduction

Antipsychotic induced weight gain occurs in up to 50 % of patients who are prescribed these drugs (Baptista, 1999; Baptista et al., 2002) and can lead to abdominal obesity (Allison et al., 1999; Baptista et al., 2002; Stedman and Welham, 1993). Prevalence of obesity among individuals with schizophrenia, schizoaffective disorders and bipolar disorders appears to be 1,5 to 2 times more frequent than in the general population (, 2004). Some studies have investigated the relationship between the length of treatment and weight gain. The maximal increase in body weight usually occurs in the first few months of treatment, then may

reach a plateau after 9 months (Kinon et al., 2001), but this is controversial as some data suggests a persistent slower weight gain following a 3 year treatment (Umbricht et al., 1994).

Incidence and severity of weight gain varies among the available antipsychotics. The atypical antipsychotics are strongly associated with this side effect (Allison et al., 1999; Baptista, 1999; Wirshing et al., 1999). The pharmacological mechanisms of antipsychotics causing weight gain are complex (Aquila and Emanuel, 2000; Werneke et al., 2002). Weight gain seems to be mainly due to increases in global caloric intake following augmentations of appetite (Bromel et al., 1998) and/or alterations of satiety regulation (Leadbetter et al., 1992).

No specific carbohydrate craving has been observed, and energy expenditure has been usually found to remain unchanged (Gothelf et al., 2002). Therefore, increased appetite and the patient's dietary intake may be better predictors of weight gain than the choice of a specific antipsychotic drug (Aquila and Emanuel, 2000).

Many recommendations have been formulated on how to treat antipsychotic-induced weight gain, including weight monitoring, diet and exercise, however, the effectiveness of all these approaches remains uncertain (Blackburn, 2001; Green et al., 2000; Werneke et al., 2003). Studies have been limited by short duration (, 2004), heterogeneity of interventions and small sample sizes (Werneke et al., 2003). Only one randomized controlled trial has been published until now (Littrell et al., 2003). Only few publications have reported follow-ups of more than six months, one focusing on patients with mental retardation (Cohen et al., 2001), and another one including only 9 patients in the weight management program (Feeney et al., 2003). Most studies have been conducted in a protected environment (hospitalisation, partial hospitalisation programs or residential setting) and none of the schizophrenic or schizoaffective outpatient observations lasted longer than 6 months. All interventions have focused on weight and included behavioural counselling and energy restricting diets. Some studies have

involved physical exercises (Archie et al., 2003; Littrell et al., 2003; Vreeland et al., 2003; Wirshing et al., 1999). All studies have reported initial and final weight and sometimes included intermediate varying minimal and maximal weight figures (O'Keefe et al., 2003). Energy restriction led to weight loss in some controlled studies (Aquila and Emanuel, 2000; Littrell et al., 2003; Rotatori et al., 1980; Vreeland et al., 2003), however, the effect was not always significant (Werneke et al., 2002), and, despite weight loss, many patient's body mass index (BMI) remained in the obese range (O'Keefe et al., 2003). Therefore, most of published weight loss interventions in psychiatric outpatients have been regular dietetic consultations (O'Keefe et al., 2003), whose long term impact remains unknown.

One important question arising when dealing with drug-induced weight gain is to know at what time point to decide about continuing or to change the treatment strategy. The objective of the present analysis was to examine if early weight change could be predictive of later weight change under maintenance of the dietary approach.

Method

This was a retrospective chart-review study. All outpatients treated by antipsychotic drugs and followed-up regularly (at least monthly) by our dietician (Charpentier C) for a period exceeding six months were identified and included into the study. Twelve patients (7 women) were identified (mean age 37 ± 4.91). The charts review revealed the following ICD-10 diagnoses: 7 patients with schizophrenia, 4 with schizoaffective disorder and one with bipolar disorder. All patients had been taken care of in the psychiatric outpatient unit of the University of Lausanne for more than five years (mean 8.67 ± 3.14), and all were undergoing an antipsychotic treatment (haldoperidol 1, zuclopenthixol 1, olanzapine 5, clozapine 1, quetiapine 2, risperidone 2) during the concerned period.

Each patient had firstly participated in a psychoeducational group session, which was followed by 8 individual weekly visits and then by monthly visits. Patients were instructed by the dietician to decrease food consumption and to substitute high caloric beverages with diet drinks. Along with this, she encouraged fruit, vegetable and fibre intake. Moderate exercise was recommended for at least 20min three times a week. Weight changes and treatment goals were discussed at each individual appointments.

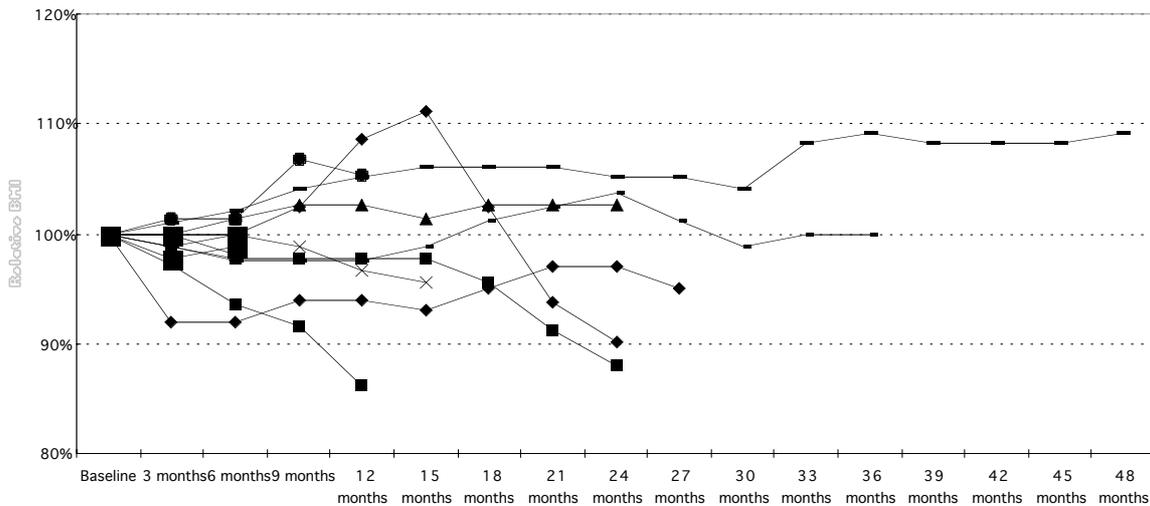
BMI and BMI-changes (in percent) were calculated for all patients at 3 month-intervals, using the mean of monthly values.

Patients were then classified for each 3-month measure-point into weight-losers (WL) or weight gainers (WG). Cohen's kappa was used to compare the WL/WG classification at 3, 6 and 9 month with classification at later time points.

Results

The evolution of BMI during the observation period is shown in Figure 1. Weight gains up to 110% of the baseline BMI contrast with weight losses down to 85%. Except for two patients, the BMI changes resulted to be quite small during the first six months. A general trend that can be work out of the figure is that initial weight changes (i.e. during the first 3 or 6 months) predict the long-term evolution, with the exception of two patients.

Fig 1: Relative BMI changes



One patient, whose BMI increased up to 111% of the baseline value until month 15, showed a rapid weight loss over the following 9 months arrive at a relative BMI of 90% compared to baseline. Interestingly, this patient had received topiramate during the weight loss period.

In a further patient, the BMI fluctuated around the baseline value.

In order to test the assumption that initial weight changes could predict the long-term evolution and represent a decision criterion for maintaining or interrupting the dietary program in a given patient, the WL/WG classifications at month 3, 6, 9, 12, 15, 18, 21 and 24 were compared. Table 1 gives the Cohen's Kappa values. The classification at 6 months resulted to have the best predictive utility, as it was maintained unchanged over the following 9 months.

Table 1
Comparisons of weight gainer/weight loser classification (Cohen's Kappa)

	6 months	9 months	12 months	15 months	18 months	21 months	24 months
3 months	1**	.696	.696	.545	.286	.545	.545
6 months		1**	1**	1*	.615	.615	.615
9 months			1**	1*	.667	.333	.333

* p<0.05

** p<0.01

Discussion

The results of this pilot study confirm previous observations showing that weight gain reversal is a long term phenomena (O'Keefe et al., 2003). Moreover, a further BMI increase of patients properly following the dietetic treatments during the first 6 months seems to predict further and/or sustained weight gain. Only one patient classified initially as a WG lost subsequently weight, and what's more showed a particularly rapid and important reduction of his BMI. As this patient was treated during this weight loss period with topiramate, a drug well known for its weight reducing properties and increasingly used in obese patients (Wilding et al., 2004). What is more, topiramate has recently been found to be of some utility particularly in patients with drug induced weight gain (Vieta et al., 2004).

Thus, psychiatric patients with sustained weight gain despite a dietary treatment, should be evaluated at the latest after 9 months in order to re-evaluate the indication for this treatment. After a review of the different factors possibly responsible for the lack of efficacy, such as cognitive difficulties or personal preferences, a change of the dietary program, and especially alternative approaches should be considered, such as the tentative introduction of topiramate.

The results of this study need to be viewed against their methodological limitations. This was a retrospective chart review. A selection bias in favour of patients particularly motivated to participate in a long-term program cannot be ruled out, increasing the chance of weight loss. Without such a bias, the efficacy results may have been worse. On the other hand, the contrary could be true, as a selection bias could have happened in favour of patients for whom the coping capacities were considered insufficient to manage their weight gain without professional help. Pre-consultation weight gain data is also poorly documented, therefore its real impact remains uncertain. As weight gain evolution can acquire ballistic qualities, the duration of weight gain before the initiation of the weight loss program, the rapidity of weight gain and the total previous weight gain may be important factors.

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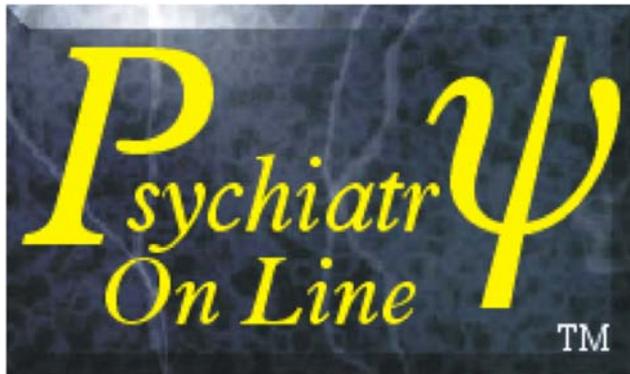
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