

## Lipid Levels in Dissociative Disorders: Effects of Psychodynamic Psychotherapy

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**Abstract** Although there are several data suggesting a link between lower lipids levels and the risk of suicide, there are few data concerning lower lipids levels in patients with dissociative disorders (DD). This is the first longitudinal study investigating the evolution of the lipids levels during a specific 8 weeks of psychodynamic psychotherapy (PP) for patients with DD. 32 patients diagnosed with DD (SCID for DSMIVR) were assessed with Dissociative Experiences Scale (DES), Clinical Global Impression and Improvement Scale and their lipids levels (total cholesterol, triglycerides, high-density lipoprotein, low-density lipoprotein and very low density lipoprotein) were measured at inclusion and after 3 and 8 weeks of PP. 30 patients finished the study. There is a significant positive ( $p < 0.05$ ) link between lower lipids levels (total cholesterol, LDL, triglycerids) and a higher level of dissociation (DES scores) at the beginning and at the end of the study. Interestingly, we found a significant ( $p = 0.018$ ) positive link between the reduction of the dissociation (DES) and the increase of the triglycerides levels after 8 weeks of treatment. While lower lipids seems related to a higher level of dissociation before and after the treatment, an increasing triglycerides level was observed after 8 weeks of PP in patients with a better outcome. Further studies are needed with larger samples and control groups, in order to

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confirm these preliminary data. These findings could open the way for hypothesis about the role of lipids in the pathophysiology of DD and raise the question of the patients with DD receiving antilipidemics agents.

**Keywords** Dissociative disorders · Psychodynamic psychotherapy · Lipids · Triglycerides

## Introduction

Different data suggest the existence of a link between lower lipids levels and several neuropsychiatric disorders [1]. In particular, lowered lipids levels were reported to be related to high rates of early death, suicide [2, 3], depression [4], anxiety [5], aggressive and violent behaviors [6]. The authors suggest that serotonin plays a key role in understanding the underlying neurobiological mechanisms of the relationship between low lipids levels and major depression, suicide and violence.

Among the possible mediators of suicidal behavior dissociation has been widely reported especially in sexually abused children and adolescents. Besides suicidality, dissociative disorders (DD) have been related also to risk-taking behaviors, such as self-mutilation, physical and sexual aggression, substance abuse, and sexual revictimization [7].

In spite of an abundant literature about links between major depression with suicidal ideas and lower lipids levels [4], there are few data suggesting lower lipids levels in patients with DD [8]. However, a better understanding of the possible links between lipids levels and DD could open the question of the underlying neurobiological mechanisms of the suicidal attempts and depressive symptoms in patients with DD. Moreover, the question of possible side effects of antilipidemics agents could be raised.

The aim of this study is to investigate the evolution of the lipids levels during a specific program of 8 weeks of psychodynamic psychotherapy (PP) treatment for patients with DD. The interest of this study resides in the observation of the dynamic relation between the level of dissociation during a psychotherapeutic specific treatment and the lipids levels.

## Methods

### Patients

Patients aged 18–65 years were interviewed according to the Dissociative Experiences Scale (DES), [9]. If their dissociation score was equal or higher than 30, the Structured Clinical Interview for DSM-IV Dissociative Disorders (SCID) [10, 11] was administered. Therefore, after a careful screening of 238 patients admitted at the emergency room of the University Hospital of Geneva or in emergency at a general practitioner private center, 32 patients were selected for the study.

The exclusion criteria were: presence of a major medical illness, as documented by the medical history and physical examination, pregnancy or lactation, suicidal ideation or behavior, substance dependence, dyslipidemia, or participation in another drug trial within 4 weeks prior enrolment into this study.

The study was approved by the local Ethical committee and by the SwissMedic and was registered before of the beginning of the study in Clinical Trials gov.com. After a careful explanation of the study, all patients provided their informed written consent to participate.

## Measures

The patients were assessed before (T1) and after three (T2) and eight (T3) weeks of treatment. The assessments and measures included the DES, the Clinical Global Impression and Improvement Scale (CGI-I), Hamilton Depression Rating Scale (HDRS), the Montgomery and Asberg Depression Rating Scale items for suicide (MADRS) and the Helping Alliance Questionnaire of Luborsky [12]. The total cholesterol, triglyceride, high-density lipoprotein, low-density lipoprotein, and very low density lipoprotein levels were evaluated in the morning between 8 and 9 AM in all subjects after an overnight fasting period.

## Efficacy Variables

A favorable outcome was defined as either a complete remission of symptoms after 8 weeks of treatment, or a DES-score of  $<25$ , or a reduction of at least 20 % on the DES scores. A favorable outcome was also considered if there was a reduction at least 30 % at of the total CGI-I scores. Partial remission was considered as a reduction of at least 15 % of the total CGI-I scores.

## Treatment

The patients were treated by a psychiatrist (CD) who has experience with the use of the specific combined treatment for DD. The psychotherapeutic follow-up is fully described elsewhere [13]. According to our specific psychotherapeutic model, after the immediate resolution of the initial crisis or emergency generated by the acute dissociation, we temporarily prolonged the crisis situation, so that the patient and his family could re-negotiate the conflict precipitating “the crisis”. During the first phase of the psychotherapy, the medical team discusses the demand of help and encourages the patient and his family to take into account the conflicts revealed by the “crisis” leading to acute dissociation. In a second phase, we investigate the subjective experience of the patient, exploring his interpersonal and intrapsychic conflicts. Then, in a third phase, the specific aim of our interventions focus the traumatizing experiences (real or imaginary) from the past and discover bad coping strategies in the present, following a frequently unconscious “repetition scenario”. The psychotherapy open to the patients the opportunity to analyze and discover new events of their life, without a rigid reference to the past traumatizing experiences. This new experience discovered during the psychotherapeutic process, lead to less dissociation, which remain a bad coping strategy in order to avoid some real or imaginary traumatizing experiences.

Another independent psychiatrist (CL) assessed the patients following a methodology described in previously [14].

The combined treatment included PP (1 h session each week) and antidepressants or antipsychotics, when needed. In order to have homogeneity, our local guidelines recommend quetiapine (400 mg/day) as an antipsychotic and escitalopram (10 mg/day) as an antidepressant for naïve drug patients.

## Statistical Analyses

The difference in clinical and biological parameters at the different assessment times was assessed by ANOVA analysis for repeated measures. The possible relationship between clinical and biological parameters was measured by the Pearson’s analysis.

This is a first pilot study and we didn't have to determine the sample size. Nevertheless we considered that 30 patients are needed to detect, at the 5 % significance level with 80 % power, a 30 % success difference between any follow-up (CGI-I variation) assessments. Those indicative data were considered following similar studies concerning the efficacy of the psychotherapeutic treatment in patients with DD [15].

## Results

The study was ended with 32 patients (30 completers, one patient with dropout and one patient diagnosed with hyperlipidemia requiring treatment). The patients with DD presented amnesia and depersonalization. The mean age of the patients was 38.15 with a standard deviation at 9.8. The man/woman ratio was 1.9.

No patients requiring an antidepressant (escitalopram) or an antipsychotic treatment (quetiapine) were included in the study, because of their concomitant suicidal ideas, or substance dependences, which were exclusion criteria. This means that included patients benefited only of psychodynamic psychotherapy.

Specific psychotherapeutic treatment was effective for improving of dissociation, because 83 % of patients meet the criteria of success and diminish their dissociation levels with at least 20 % reduction on the DES, or 30 % reduction on the CGI-I. No significant side effect was observed during the study and no patient required hospitalization during the study.

The evolution of the lipids levels expressed in mmol/l (total cholesterol, LDL, triglycerides, HDL) during the study (intake, after 3 and 8 weeks of treatment) is showed in the Fig. 1.

We observed a significant reduction in the DES Scores during the treatment and we showed this evolution of the DES scores (Baseline, after 3 and 8 weeks of treatment) in the Table 1.

We find a significant positive link ( $p < 0.05$ ) detected between lower lipids levels (only in total cholesterol, LDL and triglycerides) and a higher level of dissociation (DES scores), as shown by the DES total scores, at the beginning and after 3 and 8 weeks of treatment. We did not find significant relation between the levels of HDL and the level of dissociation.

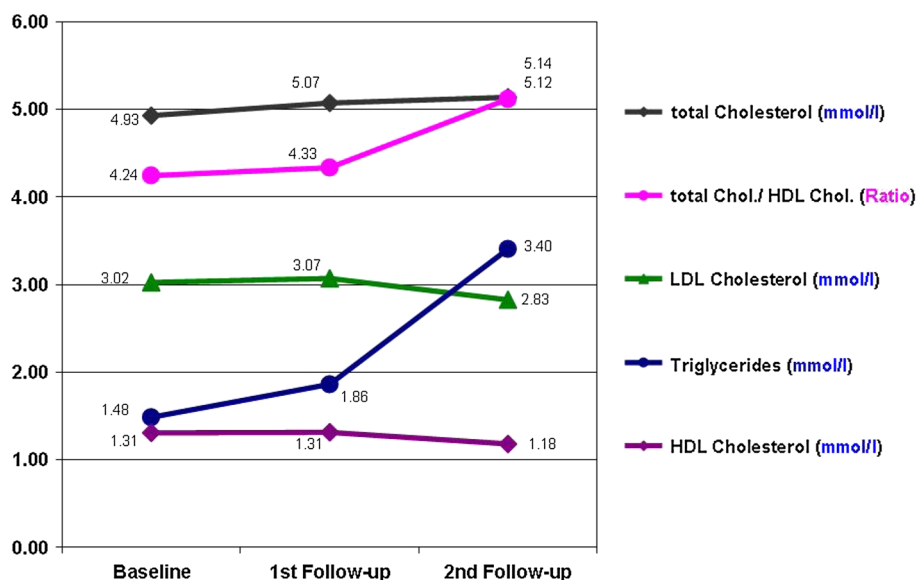
Interestingly, the reduction of the dissociation (DES) was significantly positively ( $p = 0.018$ ) related only to the increase of the triglycerides levels at the time T2, after 8 weeks of treatment.

There was no significant relation between the age, the sex, other demographic or clinical features and the type of DD (amnesia or depersonalization) and the levels of dissociation or the response to the treatment. There were no other comorbid disorders in included patients.

## Discussion

Taking into account the relation existing between DD and depression or suicide and several data suggesting a link between lower lipids levels in patients with depression and suicide [2–4], we proposed a first pilot study monitoring the lipids levels during 8 weeks of specific psychotherapy in patients with DD.

Our findings are concordant with previous data suggesting that lower lipids levels are linked to a higher level of dissociation [8]. This concordance could be related to the similar



**Fig. 1** The evolution of the lipids levels (mmol/l) during treatment: baseline, after 3 and 8 weeks of treatment. Those data are including all 30 completer subjects and not only the subjects who improved with the treatment

**Table 1** The evolution of the DES Scores: baseline versus 3 and 8 weeks of evolution

	DES score	Standard deviation
DES baseline	47.57	6.7
DES after 3 weeks of treatment	33.63	9.0
DES after 8 weeks of treatment	23.73	15.6

levels of dissociation in our sample and in the patients with DD studied by Agargun et al. [8].

Interestingly, our data suggests that a higher increase in the triglyceride levels could be related to a better outcome in patients with DD, measured by a significant diminution of the DES scores. If larger studies, including control groups, should confirm those preliminary data, the lipids profile could be a predictor of the evolution in patients with DD. This hypothesis is concordant with similar data suggesting that a low docosahexaenoic acid percentage and low omega-3 proportions of lipid profile could predict the risk of suicidal behavior among depressed patients over a 2-year period [3].

Moreover this finding, if confirmed, could open new hypothesis about the neurobiology of dissociation in patients with DD, but also in patients with suicidal ideas, major depression and dissociation. The question of the dissociation and depression in patients receiving antilipidemiants could also be raised.

The principal limitation of this study are the little sample size ( $n = 30$ ) and the lack of the control group. However, the link between lower lipids levels in patients with DD versus normal control was already described [8]. Thus, the interest of this pilot study was to search for the first time the evolution of the lipids levels during the treatment, by

comparing the patients to themselves (longitudinal study), rather than a transversal study with a control group [8].

In spite of recent efforts of the International Society for the Study of Dissociative Disorders (ISSD), the treatment of the DD remains controversial. The combined treatment seems to be the best approach: psychotherapy and pharmacotherapy, adapted for the comorbidities (depressive, anxious, psychotic symptoms). In our sample we didn't include patients requiring additionally pharmacological agents, because those patients had also suicidal ideas, or substance dependence, which were exclusion criteria. This is a supplementary limitation for our study, because many patients with DD require pharmacotherapy for their frequent comorbidities. Nevertheless, this could also be considered strength for this study, because the increasing lipids levels observed have not an exogenous explication, linked to medication (especially to the antipsychotics).

The very good response to the PP (83 % of the patients reduce at least 30 % of their CGI-I scores during the 8 weeks study period) is concordant with previous observation of patients who not require pharmacological agents and without suicidal ideas and substance dependence [15]. The very good response to the psychotherapy (the important decrease of DES scores) could explain the significant increase of triglycerides observed, in spite of the small sample size ( $n = 30$ ).

We could also imagine that the increase of triglycerides could be partially linked to subtle changes in the alimentation of some patients who testifies an increasing hedonia linked to their meals. Nevertheless, this preliminary study did not measure specifically the changes in the alimentation of the patients during the study.

The fact that we include only 32 patients among 238 patients is concordant with the literature suggesting the prevalence of patients with DD among outpatients consulting in emergency [16].

Several studies should clarify the neurobiological link existing between triglycerides and lipids in general and suicide, dissociation and depression. Serotonin seems to play a key role in this mediation [8], but we didn't find any evidence about specific role of triglycerides rather than other lipids.

## Conclusion

In spite of several data suggesting a link between lower lipids levels and the risk of suicide and major depression, there are few data concerning lower lipids levels in patients with DD. This is the first longitudinal pilot study investigating the evolution of the lipids levels during a specific 8 weeks of PP for patients with DD. Larger studies, including control groups, should confirm those preliminary data, suggesting lower lipids levels related to higher level of dissociation (DES scores) and higher triglycerides levels during the psychotherapeutic treatment in patients with a better outcome. This could open new hypothesis concerning the pathophysiology of DD and raised the question of patients receiving antilipidemics agents, especially if they present a DD.

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**Conflict of interest** None.

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