Data Article

Data regarding the effect of cannabis consumption on liver function in the prospective PAFIP cohort of first episode psychosis

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A B S T R A C T

The presented article describes data from secondary analyses, related to the research article entitled “Cannabis consumption and Non-Alcoholic Fatty Liver Disease. A three years longitudinal study in first episode non-affective psychosis patients” [1]. We present detailed data regarding the socio-demographic and baseline clinical characteristics of a sample of 390 drug-naïve patients with a first episode of non-affective psychosis, and the differences between cannabis users and non-users in those characteristics. Tables also show the results from cross-sectional and longitudinal statistical analyses exploring the relation between cannabis...
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consumption and liver function, after excluding those patients with hazardous alcohol drinking.

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1. Data

We present in this article data derived from secondary analyses of a previous study on the relation between cannabis consumption and NAFLD in a Spanish cohort of drug-naïve patients with a first episode of non-affective psychosis [1]. Raw data has been made accessible through the public data repository “Mendeley Data” at https://doi.org/10.17632/hwn48wt7j6.1.

Table 1 describes some of the main clinical and socio-demographic characteristics of the global study sample and of each cannabis groups (consumers and no consumers).

Table 2 describes the baseline and 3-years liver function tests differences between groups (cannabis users vs non users), after having excluded those patients with a moderate-severe alcohol consumption.

Table 3 shows the longitudinal differences in liver function tests between groups (cannabis users, discontinuers, non-users), after having excluded those patients with a moderate-severe alcohol consumption.
And Table 4, presents the clinical impact of cannabis use over the 3 years period, again after having excluded those patients with a moderate-severe alcohol consumption.

2. Experimental design, materials and methods

2.1. Population description

To obtain the present data, we included adult patients presenting a first episode of non-affective psychosis between 2001 and 2015 (full description of inclusion criteria in Pelayo et al., 2008), for whom we had information of cannabis use (yes/no) both at baseline and at 3-years follow-up [2]. Patients were evaluated at baseline and periodically thereafter until year 3. Anthropometric measures and fasting blood samples for lipid, glycemic and liver determinations, were collected. Main NAFLD and liver fibrosis scores (FLI, FIB-4 and NAFLD fibrosis scores) were calculated accordingly to previous literature [3–5]. Cannabis and other drugs were recorded from patients self-reports.

Table 1 shows the main clinical and socio-demographic characteristics of the study sample, and of each consuming groups (cannabis users and no users), at study entry. It also contains the results from the statistical analyses comparing these two groups regarding their clinical and sociodemographic characteristics. Patients reporting cannabis consumption were significantly younger than the non-consumers. They also presented a shorter duration of untreated psychosis, and more severe psychotic symptomatology at study entry. More patients among the cannabis group reported smoking tobacco and drinking alcohol than in the no-cannabis group.

| Table 1 | Baseline sociodemographic and clinical characteristics. |
|---------|----------------------------------------------------------|
| Cannabis users | No cannabis users | Total | Stats |
| Mean (SD) | Mean (SD) | Mean (SD) | df | F | P |
| Age at admission, years | 25.2 (6.0) | 33.7 (9.9) | 30.4 (9.5) | 1; 389 | 90.59 | < 0.001 |
| DUP, months | 7.3 (10.3) | 16.3 (36.7) | 12.8 (29.7) | 1; 386 | 8.56 | 0.004 |
| DUI, months | 18.1 (21.49) | 26.3 (45.25) | 23.98 (37.86) | 1; 376 | 76.22 | < 0.001 |
| SANS-SAPS at inclusion | 21.4 (7.6) | 19.6 (7.6) | 20.3 (7.7) | 1; 388 | 5.24 | 0.023 |
| Initial antipsychotic doses b | 215.3 (86.4) | 206.0 (82.8) | 209.6 (84.2) | 1; 389 | 1.13 | 0.289 |
| % (N) | % (N) | % (N) | N ² | P |
| Sex, males | 80.0 (120) | 40.4 (97) | 55.6 (217) | 390 | 58.60 | < 0.001 |
| Education level, secondary or lower | 58.7 (88) | 37.5 (90) | 45.6 (178) | 390 | 16.67 | < 0.001 |
| Family socioeconomic status, Not/Low qualified | 52.0 (78) | 49.8 (119) | 50.6 (197) | 389 | 0.18 | 0.375 |
| Unmarried | 88.0 (132) | 65.0 (156) | 73.8 (288) | 390 | 25.28 | < 0.001 |
| Living with family | 72.7 (109) | 74.2 (178) | 73.6 (287) | 390 | 0.11 | 0.416 |
| Student | 45.3 (68) | 39.2 (94) | 41.5 (162) | 390 | 1.45 | 0.136 |
| Diagnosis, schizophrenia | 54.5 (81) | 50.8 (121) | 52.2 (202) | 387 | 4.70 | 0.453 |
| Hospitalization at inclusion | 72.0 (108) | 65.3 (156) | 67.9 (264) | 389 | 1.91 | 0.101 |
| Drug consumption | | | | |
| Tobacco smoking, yes | 88.7 (133) | 37.5 (90) | 57.2 (223) | 390 | 78.70 | < 0.001 |
| Alcohol consumption, yes | 85.2 (127) | 29.3 (70) | 50.8 (197) | 388 | 114.94 | < 0.001 |
| Hazardous alcohol consumption, yes c | 4.9 (19) | 2.8 (11) | 7.7 (30) | 388 | 0.152 | 0.435 |
| Concomitant treatments | | | | |
| Anticholinergics, baseline | 4.7 (7) | 3.3 (8) | 3.9 (15) | 389 | 0.462 | 0.336 |
| Hypnotics, baseline | 33.6 (50) | 28.9 (69) | 30.7 (19) | 388 | 0.95 | 0.195 |
| Benzodiazepines, baseline | 66.4 (99) | 58.2 (139) | 61.3 (238) | 388 | 2.66 | 0.064 |
| Antidepressants, baseline | 1.3 (2) | 1.7 (4) | 1.5 (6) | 388 | 0.07 | 0.578 |
| Mood stabilizers, baseline | 0 (0) | 0.4 (1) | 0.3 (1) | 387 | 0.63 | 0.615 |

a Statistical analyses: Un-adjusted analysis of variance (ANOVA) for continuous variables and chi-square test for categorical variables. Abbreviations: DUP: Duration of untreated psychosis. DUI: Duration of untreated illness. SANS: Scale for the Assessment of Negative Symptoms. SAPS: Scale for the Assessment of Positive Symptoms.

b Equivalent doses of antipsychotic medication following Gardner et al., 2010 criteria.

c Alcohol consumption thresholds for the diagnosis of NAFLD: 140 and 210 g of alcohol per week in women and men, respectively (Leoni et al., 2018).

And Table 4, presents the clinical impact of cannabis use over the 3 years period, again after having excluded those patients with a moderate-severe alcohol consumption.
Table 2
Baseline and 3-years liver function tests in first episode psychosis, excluding patients with severe alcohol consumption.

|FLI algorithm factors| Cannabis users| No cannabis users| Stats<sup>a</sup>| Cannabis users| No cannabis users| Stats<sup>a</sup>|
|---|---|---|---|---|---|---|
|BMI (kg/m²)| 21.9 (0.4)| 24.0 (0.3)| 1; 342 12.585 <0.001| 24.1 (0.9)| 27.3 (0.3)| 1; 334 10.049 0.002|
|Waist circumference (cm)| 81.6 (1.7)| 84.3 (1.1)| 1; 180 1.346 0.247| 78.7 (3.3)| 91.2 (0.9)| 1; 207 12.912 <0.001|
|Triglycerides| 83.5 (4.5)| 79.3 (2.9)| 1; 282 0.512 0.475| 85.3 (11.9)| 110.9 (3.5)| 1; 333 4.158 0.042|
|Liver laboratory tests| AST| 23.5 (2.1)| 27.8 (1.3)| 1; 313 2.375 0.124| 24.3 (1.9)| 24.4 (0.6)| 1; 334 0.001 0.973|
|ALT| 21.8 (2.9)| 28.9 (1.9)| 1; 335 3.205 0.047| 26.3 (3.9)| 29.9 (1.2)| 1; 335 0.753 0.386|
|GGT| 29.2 (4.9)| 15.7 (3.2)| 1; 316 4.276 0.039| 26.1 (9.4)| 27.0 (2.8)| 1; 334 0.008 0.930|
|AP| 83.3 (9.6)| 92.0 (7.2)| 1; 123 0.417 0.520| 66.2 (5.5)| 65.6 (1.9)| 1; 125 0.010 0.920|
|Bilirubin| 0.71 (0.09)| 0.80 (0.07)| 1; 103 0.513 0.476| 0.68 (0.09)| 0.59 (0.03)| 1; 122 0.863 0.355|
|Albumin| 4.54 (0.04)| 4.54 (0.03)| 1; 305 0.006 0.399| 4.54 (0.05)| 4.53 (0.01)| 1; 322 0.039 0.844|
|Other laboratory tests| Platelets| 250.4 (7.9)| 249.6 (5.1)| 1; 267 0.005 0.941| 252.5 (12.5)| 243.7 (3.9)| 1; 321 0.437 0.509|
|Leptin| 6.6 (1.1)| 9.5 (0.7)| 1; 264 3.680 0.056| 10.0 (2.2)| 14.8 (0.6)| 1; 324 4.274 0.040|
|hsCRP| 0.17 (0.09)| 0.16 (0.06)| 1; 154 0.009 0.926| 0.14 (0.12)| 0.29 (0.03)| 1; 201 1.495 0.223|
|Hepatic disease indexes| FLI| 15.8 (3.5)| 18.8 (2.2)| 1; 153 0.432 0.512| 7.4 (7.9)| 38.6 (2.1)| 1; 202 14.169 <0.001|
|FIB-4 score| 0.69 (0.05)| 0.68 (0.03)| 1; 250 0.031 0.876| 0.73 (0.05)| 0.69 (0.01)| 1; 318 0.738 0.391|
|NAFLD score| −3.54 (0.14)| −3.41 (0.09)| 1; 242 0.508 0.477| −3.35 (0.19)| −3.05 (0.06)| 1; 311 2.277 0.132|

Abbreviations: FLI, fatty liver Index; BMI, body mass index; GGT, Gamma-glutamyltransferase; AST, aspartate aminotransferase; ALT, alanine aminotransferase; AP, alkaline phosphatase; hsCRP, high sensitivity C-reactive protein; FIB-4, fibrosis 4 score; NAFLD, non-alcoholic fatty liver disease fibrosis score.

<sup>a</sup> ANCOVA model: parameter was used as the dependent variable, cannabis use was the fixed factor and age, sex, and tobacco and alcohol consumption use were used as covariates.
## Table 3
Longitudinal differences in liver function tests, after 3 years of antipsychotic treatment, excluding patients with severe alcohol consumption.

|                        | Cannabis users | Discontinuers | Non-users | Statistics $^a$ |
|------------------------|----------------|---------------|-----------|-----------------|
|                        | Mean diff (SE) | Mean diff (SE) | Mean diff (SE) | $df$ | $F$ | $P$ |
| **FLI algorithm factors** |                |               |           |                 |
| BMI (kg/m$^2$)         | 3.0 (0.7)      | 4.5 (0.4)     | 3.6 (0.2)  | 2; 331          | 2.791 | 0.063 |
| Waist circumference (cm)| 2.4 (2.8)      | 7.3 (1.8)     | 7.2 (1.0)  | 2; 171          | 1.336 | 0.266 |
| Triglycerides          | 7.8 (12.2)     | 27.0 (7.5)    | 35.7 (4.4) | 2; 272          | 2.118 | 0.122 |
| **Other liver laboratory tests** |                |               |           |                 |
| AST                    | 0.89 (4.03)    | -0.91 (2.56)  | -3.34 (1.45) | 2; 303          | 0.522 | 0.594 |
| ALT                    | 6.5 (5.7)      | 5.7 (3.5)     | 1.7 (2.1)  | 2; 325          | 0.499 | 0.608 |
| GGT                    | 7.3 (6.6)      | 7.5 (4.2)     | 7.2 (2.5)  | 2; 306          | 0.002 | 0.998 |
| AP                     | -5.4 (16.3)    | -18.2 (10.3)  | -30.4 (7.2) | 2; 121          | 0.902 | 0.409 |
| Bilirubin              | -0.26 (0.11)   | -0.03 (0.08)  | -0.22 (0.05) | 2; 98           | 2.556 | 0.083 |
| Albumin                | 0.001 (0.09)   | -0.020 (0.05) | -0.028 (0.03) | 2; 259          | 0.040 | 0.961 |
| **Other laboratory tests** |                |               |           |                 |
| Platelets              | -10.3 (11.9)   | 1.2 (7.1)     | -13.4 (4.2) | 2; 254          | 1.473 | 0.231 |
| Leptin                 | 4.6 (2.7)      | 7.1 (1.6)     | 5.4 (0.9)  | 2; 247          | 0.563 | 0.570 |
| hsCRP                  | -0.005 (0.22)  | 0.060 (0.12)  | 0.102 (0.07) | 2; 145          | 0.115 | 0.892 |
| **Hepatic disease indexes** |                |               |           |                 |
| FLI                    | -3.7 (6.6)     | 19.6 (4.2)    | 19.8 (2.3) | 2; 144          | 5.826 | 0.004 |
| FIB-4 score            | 0.022 (0.09)   | -0.035 (0.05) | 0.047 (0.03) | 2; 237          | 0.803 | 0.449 |
| NAFLD score            | 0.21 (0.23)    | 0.38 (0.15)   | 0.58 (0.08) | 2; 224          | 1.274 | 0.282 |

Abbreviations: FLI, fatty liver Index; BMI, body mass index; GGT, Gamma-glutamyltransferase; AST, aspartate aminotransferase; ALT, alanine aminotransferase; AP, alkaline phosphatase; hsCRP, high sensitivity C-reactive protein; FIB-4, fibrosis 4 score; NAFLD, non-alcoholic fatty liver disease fibrosis score.

$^a$ ANCOVA model: mean differences after 3 years of treatment were used as dependent variables, evolution of cannabis use was the fixed factor and age, sex, and tobacco and alcohol use trajectories use were applied as covariates.
### Table 4
Comparison of proportion of subjects with pathological liver functions tests, at baseline and at 3-years in each cannabis consumption group, excluding patients with severe alcohol consumption.

| 3 year follow-up | Baseline | % difference | N  | p²  |
|------------------|----------|--------------|----|-----|
|                  | % (n)    | % (n)        |    |     |
| **AST, > 35 UI/L** |          |              |    |     |
| Continuer        | 6.9 (2)  | 13.8 (4)     | −6.9| 29  | 0.687|
| Discontinuers    | 9.7 (7)  | 15.3 (11)    | −5.6| 72  | 0.424|
| Non-users        | 7.8 (16) | 14.6 (30)    | −6.8| 206 | 0.044|
| Total            | 8.1 (25) | 14.7 (45)    | −6.6| 307 | 0.015|
| **ALT, > 40 UI/L** |          |              |    |     |
| Continuer        | 16.7 (5) | 10.0 (3)     | 6.7 | 30  | 0.625|
| Discontinuers    | 22.0 (18)| 8.5 (7)      | 13.5| 82  | 0.019|
| Non-users        | 16.6 (36)| 12.4 (27)    | 4.2 | 217 | 0.253|
| Total            | 17.9 (59)| 11.2 (37)    | 6.7 | 329 | 0.013|
| **GGT, > 32 UI/L** |          |              |    |     |
| Continuer        | 10.0 (3) | 0            | 10.0| 30  | –    |
| Discontinuers    | 23.0 (17)| 6.8 (5)      | 16.2| 74  | 0.002|
| Non-users        | 19.9 (41)| 10.7 (22)    | 9.2 | 206 | 0.001|
| Total            | 19.7 (61)| 8.7 (27)     | 11.0| 310 | <0.001|
| **Leptin, > 10 ng/ml** |      |              |    |     |
| Continuer        | 10.0 (2) | 0            | 10.0| 20  | –    |
| Discontinuers    | 42.6 (26)| 13.1 (8)     | 29.5| 61  | <0.001|
| Non-users        | 64.5 (109)| 36.1 (61)   | 28.4| 169 | <0.001|
| Total            | 54.8 (137)| 27.6 (69)   | 27.2| 250 | <0.001|
| **hsCRP, > 0.3 ng/dL** |     |              |    |     |
| Continuer        | 0       | 11.1 (1)     | −11.1| 9   | –    |
| Discontinuers    | 20.5 (8)| 7.7 (3)      | 12.8| 39  | 0.125|
| Non-users        | 24.2 (24)| 7.1 (7)      | 17.3| 99  | 0.001|
| Total            | 21.8 (32)| 7.5 (11)     | 14.3| 147 | <0.001|
| **FLI, ≥ 60**    |          |              |    |     |
| Continuer        | 0       | 0            | 0   | 12  | –    |
| Discontinuers    | 28.1 (9)| 6.2 (2)      | 21.9| 32  | 0.022|
| Non-users        | 25.0 (25)| 9.0 (9)      | 16.0| 100 | <0.001|
| Total            | 23.6 (34)| 7.6 (11)     | 16.0| 144 | <0.001|

**Abbreviations:** FLI, fatty liver Index; GGT, Gamma-glutamyltransferase; AST, aspartate aminotransferase; ALT, alanine aminotransferase; hsCRP, high sensitivity C-reactive protein.

¹ McNemar test for repeated measures.
2.2. Secondary analyses excluding patients with moderate-severe alcohol consumption

Due to the well-known deleterious effect of alcohol on liver, and despite being one of the study's exclusion criteria presenting an alcohol dependence, we considered appropriate carrying secondary analyses after exclusion of those patients with alcohol consumption qualifying for moderate-severe drinking. For this, moderate-severe alcohol use was defined using the accepted alcohol consumption thresholds for the diagnosis of NAFLD: 140 and 210 g of alcohol per week in women and men, respectively [6]. Tables 2–4 contains the results from the statistical analyses, both cross-sectional and longitudinal, after excluding these patients (n = 40).

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Conflict of Interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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