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1 **Prevalence of tobacco and cannabis use in a prospective cohort of spontaneous**  
2 **pneumothorax and cessation rate at 6 months**

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25 Primary spontaneous pneumothorax (PSP) is a common disease in young adults with an  
26 incidence of 18/100 000 cases in men and 6/100 000 cases in women [1]. Tobacco smoking  
27 increases the risk of a PSP leading to a relative risk of 20 in a dose-dependent manner [2].

28 Cannabis is the most commonly smoked illicit substance in many countries. In France,  
29 6,4% of 18 to 64 year-old people reported cannabis use at least once in the past month [3].  
30 Cannabis can be smoked alone in plain form (marijuana), but in France it is mainly smoked in  
31 the form of cannabis resin mixed with tobacco [3].

32 Pneumothorax treatment by chest tube drainage or pleurodesis, may be impressive  
33 events in these young patients [1]. However, whether PSP treatment, medical advice and  
34 mandatory tobacco counseling influence smoking cessation rate at six months remains  
35 speculative.

36 The aim of this study was to describe the prevalence of tobacco and cannabis use in a  
37 French prospective cohort of patients with PSP, and to assess tobacco and cannabis cessation,  
38 six months after occurrence of such a medical event.

39 All patients referred to the “SOS pneumothorax unit” in our university’s thoracic  
40 surgery department at Tenon Hospital, Paris, France between 01/01/2012 and 31/5/2013 were  
41 informed on their inclusion in a local prospective database (CNIL (1982838 v 0)). The study  
42 protocol was approved by the Institutional Review Board of the French Society of Thoracic  
43 and Cardiovascular Surgery (CERC-SFCTCV-2016-8-8-22-26-27-GoVa).

44 Tobacco and cannabis consumption were assessed and respectively quantified in pack-  
45 years (PY) and joint-years (JY). One JY corresponds to the cumulative smoking of 1 joint per  
46 day for one year. All active smokers had a mandatory smoking cessation counselling given by  
47 a tobacco-specialized pulmonologist (AMR, FA) or tobacco-specialized nurse. Tobacco and  
48 cannabis cessation at six months was assessed by systematic phone calls to the patients.

49 Mean values with standard deviation (SD) were calculated for continuous variables,  
50 while categorical variables were described with frequencies and percentages. Association of  
51 clinical baseline characteristics and 6-months smoking or drug use rates were tested using  
52 Chi<sup>2</sup>, Fisher statistics or Student t-test when appropriate. Findings were considered  
53 statistically significant if *p* values were < 0.05.

54 Over the study period, 205 patients were hospitalized for a pneumothorax. A PSP was  
55 diagnosed in 106 patients, 11 patients were excluded for an iatrogenic pneumothorax, 23 for a  
56 traumatic pneumothorax and 65 for a secondary spontaneous pneumothorax.

57 In this cohort, 85 patients were men (80%) and 21 women (20%) with a mean age of  
58 28.0 years (15-49) (Table 1A).

59 Concerning tobacco use, 87 % of patients were active (90/106) or former (2/106)  
60 tobacco smokers with a mean consumption of 7.0 pack year (SD 6, 9). Concerning cannabis  
61 use, 77 % of patients (82/106) had tested cannabis smoking. Among the cannabis users, 40  
62 (49%) were consuming >1/month. All > once a month cannabis smokers had associated  
63 tobacco consumption. Mean cannabis consumption in regular cannabis smokers was 17 JY  
64 (SD 27,7). All subjects reported smoking joints as the only form of cannabis use. No  
65 significant differences in age, gender or pneumothorax treatment were noted between patients  
66 with or without cannabis use.

67 Of the active smokers, all (90/90) received a smoking cessation counselling by the  
68 surgeon and 56% (50/90) received a smoking cessation counselling by the tobacco-specialized  
69 pulmonologist or tobacco-specialized nurse.

70 Data of tobacco/cannabis cessation at 6 months were successfully recovered by phone  
71 call in 54.5 % (49/90) of smokers. Smoking cessation was 35% (17/49) for tobacco and 42%  
72 (9/21) for cannabis users (>1/month). Clinical factors associated with tobacco smoking

73 cessation failure were the young age of smoking onset (15.3 vs. 17.4 years,  $p=0.008$ ) and  
74 associated cannabis use (78% cannabis use in the tobacco smoking cessation failure group vs.  
75 35% in the successfully stopping tobacco smoking group,  $p=0.003$ ) (Table 1B).

76 The prevalence of tobacco and cannabis uses among patients with PSP in Paris, France  
77 is high. Prevalence of tobacco smoking was consistent with previous reports [1,2]. Prevalence  
78 of cannabis use seems much higher than the prevalence of cannabis use in the general French  
79 population [3].

80 Our data show a low tobacco/cannabis cessation rate in this population. Despite a  
81 counselling at the bedside and a disease that could be worsened by tobacco/cannabis use, 6-  
82 months cessation rates were only 35 % in tobacco and 42 % in cannabis users, respectively.  
83 Associated cannabis use was associated with tobacco cessation failure. Cessation rates were  
84 consistent with those previously reported in young adults [4,5].

85 In addition to its single-center study, two major limitations of our study are the self-  
86 reported smoking cessation without biochemical validation measures and the 6 months  
87 follow-up.

88 All patients with a PSP should be specifically questioned about their tobacco and  
89 cannabis uses. Analysis of factors associated with tobacco and/or cannabis cessation failure in  
90 young people are important to assess specific smoking cessation interventions.

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113 **Table 1 :**  
 114 A.

<b>Characteristics</b>	<b>All patients n= 106</b>
<b>Age (year ) [min-max]</b>	28.0 [15 ;49]
<b>Men</b>	85 (80%)
<b>Women</b>	21 (20%)
<b>Chest tube drainage</b>	86 (81%)
<b>Surgical treatment</b>	52 (49%)
<b>Tobacco status</b>	
Active smoker	90 (7085%)
Former smoker	2 (2%)
Non smoker	14 (13%)
<b>Age of smoking onset (year )</b>	15.7 (SD 2.2)
<b>Pack Years (number)</b>	7.0 (SD 6.9)
<b>Cannabis use</b>	82 (77%)
Daily	24 (30%)
≥1/week	11 (13.8%)
≥1/month	5 (6.3%)
<1/month	32 (37.5%)
Frequency not known	8 (10%)
Former	2 (3.5%)
<b>Joint-years (number)</b>	17 (SD 27.7)

116 B.

<b>At 6 months</b> N=49	<b>stop tobacco</b> 35% (17)	<b>active tobacco</b> 63% (32)	
<b>Age (year ) [min-max]</b>	27.5 [22-33]	28.3 [17-41]	n.s.
<b>Men</b>	13 (76%)	28 (87%)	n.s.
<b>Women</b>	4 (24%)	4 (12%)	
<b>Age of smoking onset</b>	17.4 (SD 1.8)	15.3 (SD 2.4)	0.008
<b>Pack Years</b>	6.5 (SD 6.5)	7.7 (SD 7.0)	n.s.
<b>Initial Cannabis use (&gt;1/month)</b>	6 (35%)	25 (78%)	0.003

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