

# ANALYSIS AND COMPARISON OF OLANZAPINE ADMINISTRATION IN SMOKING AND NON-SMOKING PATIENTS

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## BACKGROUND AND IMPORTANCE

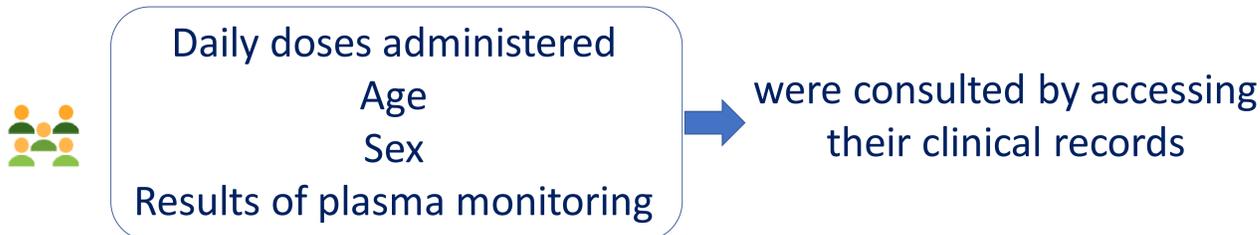
Olanzapine is an atypical antipsychotic that is metabolised by the **cytochrome P-450 (CYP1A2 isoenzyme)**. This isoenzyme is induced by **tobacco smoke**, resulting in **reduced plasma concentrations** of olanzapine when both are administered concomitantly.

## AIM AND OBJECTIVES

The **aim** is to analyse and compare the daily **dose** of **olanzapine** and its **plasma concentration** in **smoking and non-smoking** patients.

## MATERIALS AND METHODS

- Retrospective observational study
- Patients on chronic treatment with olanzapine
- Levels were monitored in the clinical pharmacokinetics area of the Pharmacy Service of a regional hospital
- Between 01/01/2021 and 08/06/2021



Therapeutic range of olanzapine considered: 20-80 mcg/mL



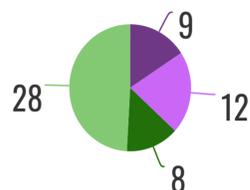
To **evaluate** the effect of **CYP1A2 isoenzyme induction**, the **mean concentrations obtained** were compared with those that should **theoretically** be present in the group of smokers **according to the linear dose-concentration** pharmacokinetic behaviour of olanzapine in non-smokers.

## RESULTS

62 patients were monitored

5 were excluded: 4 undetectable levels  
1 self-harm attempt

Analysis finally included **57 patients**: 17 smokers (29.8%)  
40 non-smokers (70.2%)  
Median age: 44 years  
(IQR=31.5-54.5)



.9 women smokers .12 women non-smokers **21 women (36.8%)**  
.8 men smokers .28 men non-smokers **36 men (63.2%)**

	Women smokers	Women non-smokers	Men smokers	Men non-smokers
Mean daily dose of olanzapine (mg 95% IC)	15,3 (10,6-20,0)	14,8 (11,0-18,6)	22,5 (18,0-27,0)	18,4 (13,8-23,0)
Mean plasma concentrations (mcg/mL 95% IC)	52,5 (38,1-66,9)	80,8 (46,8-114,8)	49,8 (29,0-70,6)	50,1 (37,0-63,2)

For the mean olanzapine dose observed in women and men smokers, the **mean theoretical concentration would have been 83.5mcg/mL in women and 61.3mcg/mL in men**. This is **37.1%** and **18.8% higher** than the results obtained, respectively.

## CONCLUSION AND RELEVANCE

In the **smokers** group, the mean prescribed **dose** was **3.3% higher in women** and **18.2% higher in men**, and the **mean plasma concentration** was **35% lower in women** and **0.6% lower in men**, compared to the **non-smokers** group.

**Differences** were observed between **smokers and non-smokers** that would correspond to the **tobacco-inducible effect**, although studies with larger numbers of patients are needed to establish the tobacco-olanzapine interaction as clinically relevant.



ABSTRACT NUMBER: 4CPS-244



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