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

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

Daily doses administered were consulted by accessing their clinical records

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

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)

Women smokers

- Mean daily dose of olanzapine (mg 95% CI): 15.3 (10.6-20.0)
- Mean plasma concentrations (mcg/mL 95% CI): 52.5 (36.1-66.9)

Women non-smokers

- Mean daily dose of olanzapine (mg 95% CI): 14.8 (11.0-18.6)
- Mean plasma concentrations (mcg/mL 95% CI): 80.8 (46.8-114.8)

Men smokers

- Mean daily dose of olanzapine (mg 95% CI): 22.5 (18.0-27.0)
- Mean plasma concentrations (mcg/mL 95% CI): 48.9 (29.0-70.6)

Men non-smokers

- Mean daily dose of olanzapine (mg 95% CI): 18.4 (13.8-23.0)
- Mean plasma concentrations (mcg/mL 95% CI): 50.1 (37.0-63.2)

For the mean olanzapine dose observed in women and men smokers, the mean theoretical concentration would have been 83.5 mcg/mL in women and 61.3 mcg/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