

# DOSING OF PLATINUM AND TAXANES IN OBESE PATIENTS: A SYSTEMATIC REVIEW

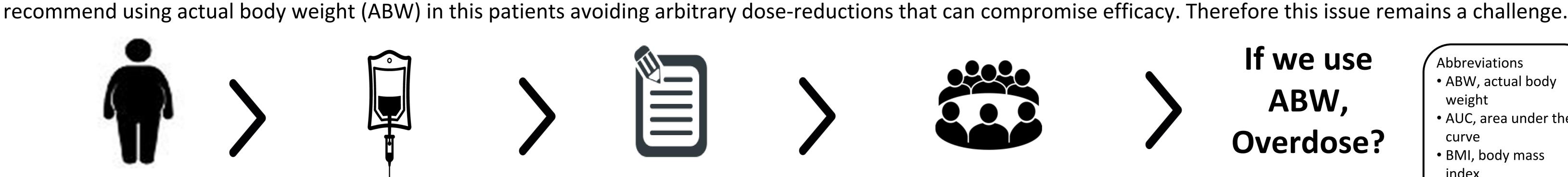




### Introduction

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Platinum and taxane-based chemotherapy dosing, as others anticancer agents, is based on body surface area (BSA), except in the case of carboplatin that is more often based on the area under curve (AUC). Both parameters depend on the weight, and the obesity (body mass index-BMI≥30kg/m2) could lead to overdose. Some guidelines

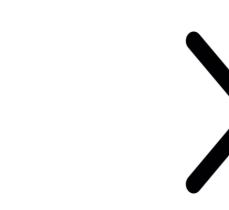


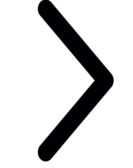




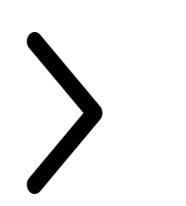












If we use ABW, Overdose?

Risk of toxicity

**Abbreviations** 

- ABW, actual body weight
- AUC, area under the curve
- BMI, body mass index
- BSA, body surface area

### Obese patient

**Chemotherapy Dosing** 

Based on **BSA or AUC (carboplatin)** 

### Some guidelines recommend:

- Use ABW
- Avoid arbitrary dose-reductions

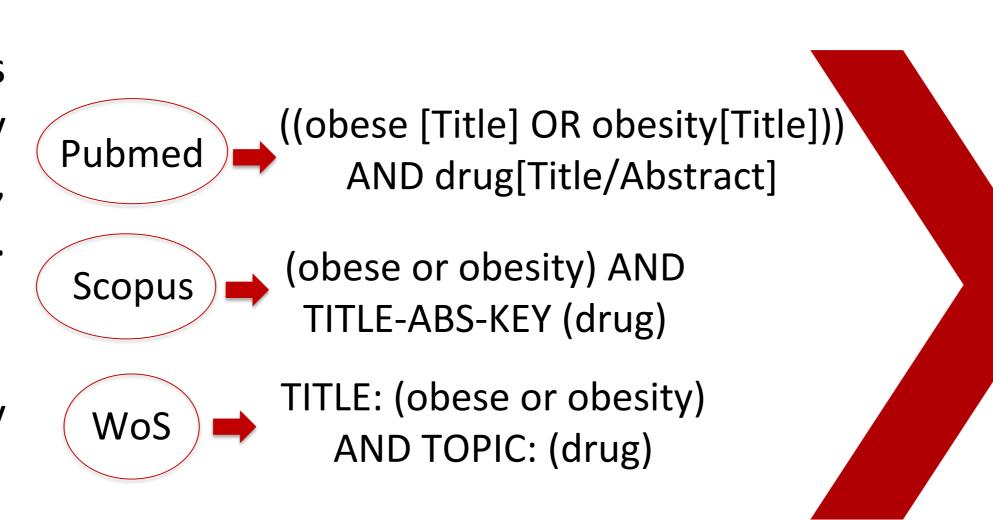
To analyze the evidence and recommendations available about the dosage of platinum-based (cisplatin, carboplatin, oxaliplatin) and taxane-based (paclitaxel, docetaxel, nab-paclitaxel) chemotherapy regimens in obese patients.

#### Methods

Objective

formal literature search was performed for each chemotherapy drug on three databases: Pubmed, Scopus and Web of Science (WoS). The following strategies were used:

Eventually we limited the search by language (English/Spanish).



#### **Exclusion criteria:**

(A) Not useful or incomplete information for the aim of the study

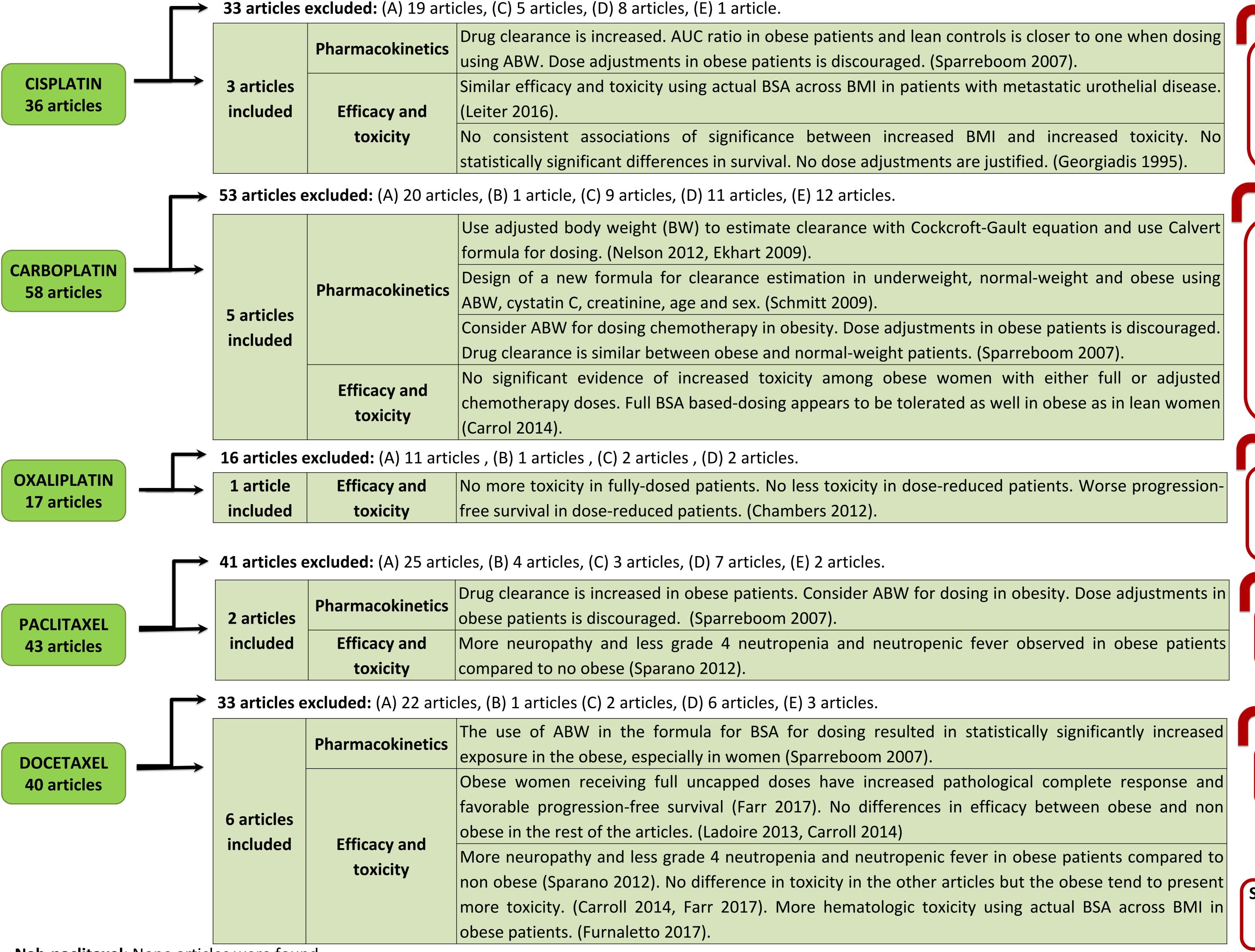
(B) Insufficient simple size (Total n<10,

- Subgroup n<5)
- (C) Obesity criteria  $\neq$  IMC $\geq$ 30 kg/m<sup>2</sup>
- (D) Systematic review (E) Full-Text no available

#### **Inclusion criteria:**

Use of ABW in obese patients and analysis of toxicity and/or efficacy

#### **Results and Discussion**



**CISPLATIN** Use ABW. Increased clearance and volume of distribution

### **CARBOPLATIN** Calvert formula

for dosing. **Estimation of GFR** using ABW or adjusted BW; limit GFR to a maximum of 150 mL/min

## **OXALIPLATIN**

Use ABW. Monitor neurotoxicity



**PACLITAXEL** Use ABW



**SARCOPENIC OBESE** More toxicity observed

Nab-paclitaxel: None articles were found.

Exclusion Although many articles were excluded, some of them present an interesting approach or complementary information about chemotherapy dosing in obese patients:

- criteria: • Palmela 2007 and Anandavadivelan 2016 analyze the effect of body composition in addition to BMI. Higher risk of toxicity was found in sarcopenic patients compared to non-(C) sarcopenic obese patients.
  - Stocker 2016 suggests more neuropathic toxicity in patients receiving full-dose vs reduced-dose of oxaliplatin across all BMI subgroups.
  - Hourdequin 2013 (meta-analysis) observe that obese patients receiving chemotherapy based on ABW experience similar or lower rates of toxic effects compared with normalweight patients, and survival outcomes do not differ.
  - Miyahara 2013 show significant differences in grade 3/4 hematological toxicity in obese patients with solid tumors in the ABW and ideal BW, but not in obese patients with hematological malignancies. In solid tumor patients with complications, incidence of Grade 4 hematological toxicity was significantly higher in the ABW than in the ideal BW.

### Conclusions

(C)

(D)

For platinum and taxane-based chemotherapy the use of ABW for dosing in obese patients is the most accepted proposal according to the analyzed literature.

For carboplatin, depending of the GFR obtained, this should be limited to a maximum of 150 mL/min or use an adjusted body weight for dosing. Furthermore, analysis of body composition could be used for dosing or reducing risk of toxicity in sarcopenic patients.