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Background and importance

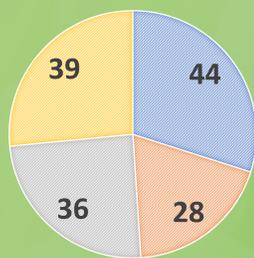
Dose banding(DB) is a strategy used to optimize the individualization of antineoplastic treatments in order to reduce dose errors and achieve the highest efficiency.

Aim and objectives

The aim of this work is to implement a DB-system and analyze its impact on the **efficiency and security** of patients treated with 5-fluorouracil(5-FU) elastomeric pumps and oxaliplatin, paclitaxel and gemcitabin solutions.

Retrospective 5-month study

PATIENTS TREATED WITH ANTINEOPLASTIC AGENTS



■ 5-FU ■ Oxaliplatin
■ Paclitaxel ■ Gemcitabin

N= 147

5-FU was prepared in an elastomeric pump. The remaining drugs were prepared in 0,9% NaCl solution container.

Materials and methods

Patients were divided into **two groups for each drug**, depending on the theoretical calculated doses adjusted to their body surface area: **P1 higher-doses, P2 lower-doses**. Dose-range was established with a **±5% variability**



Efficiency: number of elaborations, expired preparations and percentage of saved vials.



Security: comparing leucocyte (5-FU) and neutrophils-levels (oxaliplatin, paclitaxel and gemcitabine) the day before the treatment and preceding the next dose.



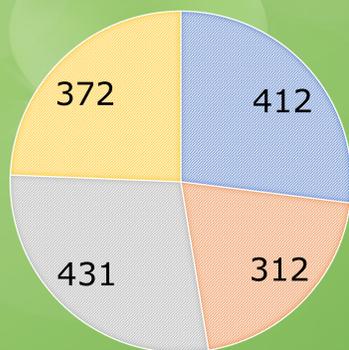
Statistical association: t-Student, Wilcoxon and Shapiro-Wilks tests.

Non-statistical significance was considered a favorable outcome.

Results

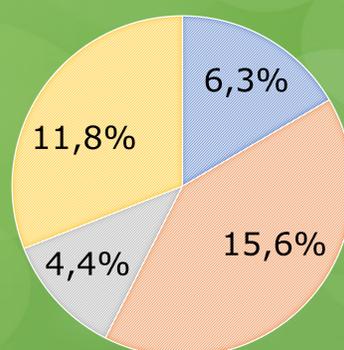
Six 5-FU, oxaliplatin and paclitaxel doses were standardized covering 93.6%, 100% and 72% of patients respectively, and seven gemcitabin doses, covering 97.5%.

NUMBER OF PREPARATIONS ELABORATED (1527)



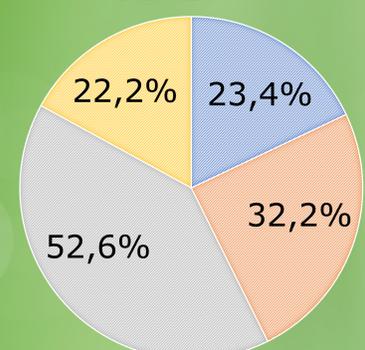
■ 5-FU ■ Oxaliplatin
■ Paclitaxel ■ Gemcitabin

PERCENTAGE OF EXPIRED-PREPARATIONS



■ 5-FU ■ Oxaliplatin
■ Paclitaxel ■ Gemcitabin

PERCENTAGE OF SAVED VIALS



■ 5-FU ■ Oxaliplatin
■ Paclitaxel ■ Gemcitabin

There were **no statistical differences** between leucocyte/ neutrophils levels measured before and after the treatment in either group.

5-FU		Oxaliplatin		Paclitaxel		Gemcitabin	
p= 0.99	p= 0.57	p= 0.71	p= 0.57	p= 0.90	p= 0.26	p= 0.32	p=1

Conclusion and relevance

The implementation of the project turned out to be **simple and satisfactory**. The process proved to be **efficient** after the stock adjustment (oxaliplatin and gemcitabine). The DB **did not compromise the security** of the patients in terms of hematological toxicity. **Thus, DB presents as a cost-effective technique that might be taken into account.**

References

Rodriguez-Reyes, M. et al. Dose banding of intravenous ganciclovir: Banding scheme proposal and audit of toxicity and efficiency. J Clin Pharm Ther. 2021;46: 767-771.

Pérez Huertas P. et al. Applying dose banding to the production of antineoplastic drugs: a narrative review of the literature. Farm Hosp. 2015;39(4):210-6.