4CPS-099

CHIMERIC ANTIGEN RECEPTOR-T CELLS (CAR-T CELLS) AND ANTIBIOTICS : A NOT-SO-INNOCENT ASSOCIATION

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Background and aim

According to an American study[1], prior exposure to **Piperacillin/tazobactam (P/T), Imipenem/cilastatin (I) and Meropenem (M)** is correlated with reduced overall survival and a 71% higher risk of death in patients treated with CAR-T cell).
Additionally, this exposure is associated with an elevated risk of immune effector cell-associated neurotoxicity syndrome (ICANS).

Does the American results apply to our real-life results ?

Materials and Methods

"CAR-T cells" pharmaceutical team

- Identified patients that received a CAR-T cells injection between January 2019 and August 2023

Antibiotic prescriptions four weeks preceding the CAR-T cells infusion, post-injection toxicities:

- Immune effector cell-associated neurotoxicity syndrome (ICANS)
- Cytokine release syndrome (CRS))
- Mortality within six months of the CAR-T cell injection

Two groups defined to ensure comparable study populations :

- "PTIM" comprising patients who received Piperacillin/tazobactam (PT), Imipenem/cilastatin (I), or Meropenem (M) antibiotics
- "Other antibiotics and naive" including patients who received antibiotics other than PTIM

Results

Figure 1 : Distribution of antibiotic prescriptions (numbers) among patients (n=205) who received CAR-T cells

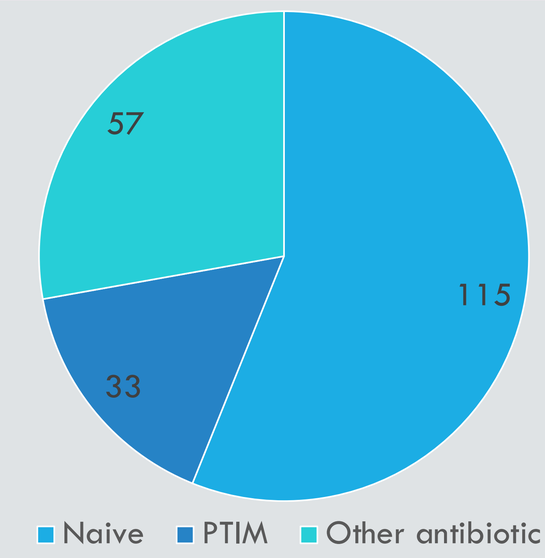
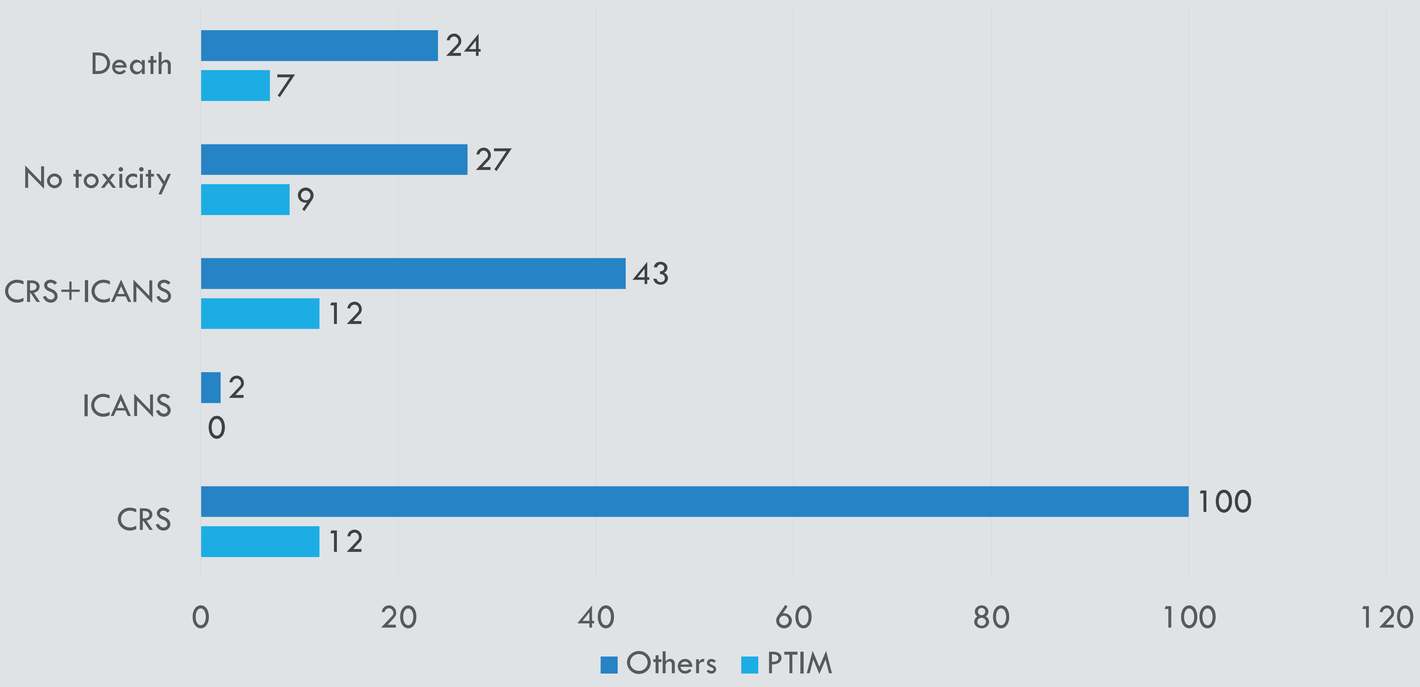


Figure 2 : Number of antibiotics prescribed

Antibiotic	Occurrences
PT	33
Augmentin	10
Amikacine	6
Linezolide	6
Ciprofloxacine	6
Cefepime	5
Daptomycine	5
Vancomycine	3
Meropenem	3
Amoxicilline	3
Ofloxacine	3
Levofloxacine	2
Ceftolozane/avibactam	1
Teicoplanine	1
Ceftriaxone	1

Figure 3 : Adverse events occurring within one month post-CAR-T cells (numbers)



Comparison between the PTIM group and the « Naive and other antibiotics » showed :
A higher risk of CRS has been identified in the "P/T/I/M" group (p=0.02).
No other significant difference was found between the 2 groups on : ICANS+CRS (p=0.2), ICANS (p=1), or death (p=0.29).

Conclusion and Relevance

Patients exposed to PTIM 4 weeks prior CAR-T cells infusion have been found to face **an increased risk of CRS**.
It is important to highlight that, in our study, PT was the most commonly prescribed antibiotic.
Our study also shows no excess risk of ICANS nor toxicities and death for PTIM patients. Our results are therefore not similar to those of the American study.
These differences could be explained by the size of our population and the fact that the American study only selected anti-CD19 CAR-T cells.

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