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## Background and importance

Immunotherapy fixed-dose (FD) inclusion in daily clinical practice has led to a significant economic impact. Some studies show the equivalence of nivolumab<sup>1</sup> and pembrolizumab<sup>2</sup> at individualized-dose (ID: nivolumab 3mg/kg/2w; pembrolizumab 2mg/kg/3w) and FD (nivolumab 240mg/2w, 480mg/4w; pembrolizumab 200mg/3w).

## Aim and objectives

Evaluating the impact of applying dose-banding (DB) in immunotherapy with nivolumab and pembrolizumab in terms of efficiency, chemotherapy schedule and pharmacological exposure.

## Material and methods

- Observational retrospective study conducted at a tertiary hospital, including patients treated with nivolumab and pembrolizumab from January/2019 to September/2021.
- Anthropometrical measures and number of administered cycles were specified.

### Dosage adjustment intervals:

| NIVOLUMAB      | PEMBROLIZUMAB  |
|----------------|----------------|
| < 60kg: 170mg  | < 70kg: 130mg  |
| 60-70kg: 200mg | 70-90kg: 160mg |
| 70-80kg: 230mg | > 90kg: 200mg  |
| > 80kg: 240mg  |                |

### Clinical application of DB:

- ✓ Efficiency: annual economic saving, calculated as the difference in cost between FD and DB.
- ✓ Chemotherapy schedule: changes in the frequency of treatment administration, calculated as median difference in number of cycles administered per year.
- ✓ Pharmacological exposure: dosage discrepancy between DB-FD, calculated as median dose deviation.

## Results



| DB-FD                           | NIVOLUMAB            |               | PEMBROLIZUMAB           |               |
|---------------------------------|----------------------|---------------|-------------------------|---------------|
| <b>Efficiency</b>               | DB: 529,556 €        | FD: 573,235 € | FD: 1,103,387 €         | DB: 820,262 € |
|                                 | - 43,679 € / year    |               | - 283,125 € / year      |               |
| <b>Chemotherapy schedule</b>    | + 58 cycles / year   |               | no difference           |               |
| <b>Pharmacological exposure</b> | -4.2% (-16.7 to 0.0) |               | -20.0% (-35.0 to -20.0) |               |

## Conclusion and relevance

The implantation of a dose-banding program with nivolumab and pembrolizumab would lead to potential economic savings and a dosing reduction in comparison with fixed-dose regimen. This is especially attracting in pembrolizumab, which achieve higher annual savings without detriment of the chemotherapy schedule.

## References

1. DOI:10.1093/annonc/mdx235 // 2. DOI:10.1186/s40425-017-0242-5