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Gastrointestinal toxicities associated with immune checkpoint inhibitors: a disproportionality analysis leveraging VigiBase, the WHO Adverse Drug Reaction Database

Key words: Immune checkpoint inhibitors; Gastrointestinal toxicities; VigiBase; Information component; Reporting odds ratio

Research Summary

This study aimed to identify and characterize gastrointestinal immune-related adverse events (irAEs) associated with Immune checkpoint inhibitors (ICIs).

- **ICI treatment was associated with higher reporting of enterocolitis, gastrointestinal perforation, duodenitis, intestinal obstruction, and megacolon.**
- **Compared to those treated with ICI monotherapy, duodenitis, enterocolitis, and intestinal obstruction were overreported for patients treated with ICI combination therapy.**
- **Enterocolitis, gastrointestinal perforation, and megacolon were overreported for patients who received anti-CTLA -4 treatment versus those who received anti-PD-1/anti-PD-L1 treatment.**

Innovation points

- **Introduction** of the WHO Adverse Drug Reaction Database, Vigibase
- **Method** of the disproportionality analysis using the information component (IC), or the reported odds ratio (ROR)
- **Emphasize** that ICI therapies may lead to gastrointestinal irAEs, and severe megacolon may even occur

Figure 4

Innovation points

A series of comprehensive tables were generated to summarize the characteristics of gastrointestinal irAEs associated with ICIs

Table 1 | Reports of ICI-associated gastrointestinal irAEs versus those included in the full database of VigiBase (from January 1, 2011 to March 6, 2019).

Table 2 | Major ICI-associated gastrointestinal ADRs compared to the full database of VigiBase (January 1, 2011 to March 6, 2019).

Table 3 | Basic information of ICI-associated gastrointestinal ADR cases reported to VigiBase (January 1, 2011 to March 6, 2019).

Table 4 | Comparison of ICI regimen for ICI-associated digestive system ADRs reported to VigiBase (January 1, 2011 to March 6, 2019).

Fig. 1 | Time to onset of ICI-associated gastrointestinal irAEs reported to Vigibase (Jan 1, 2011 to Mar 6, 2019).