Analysis reveals adverse effects of complex cancer therapies called antibody drug conjugates

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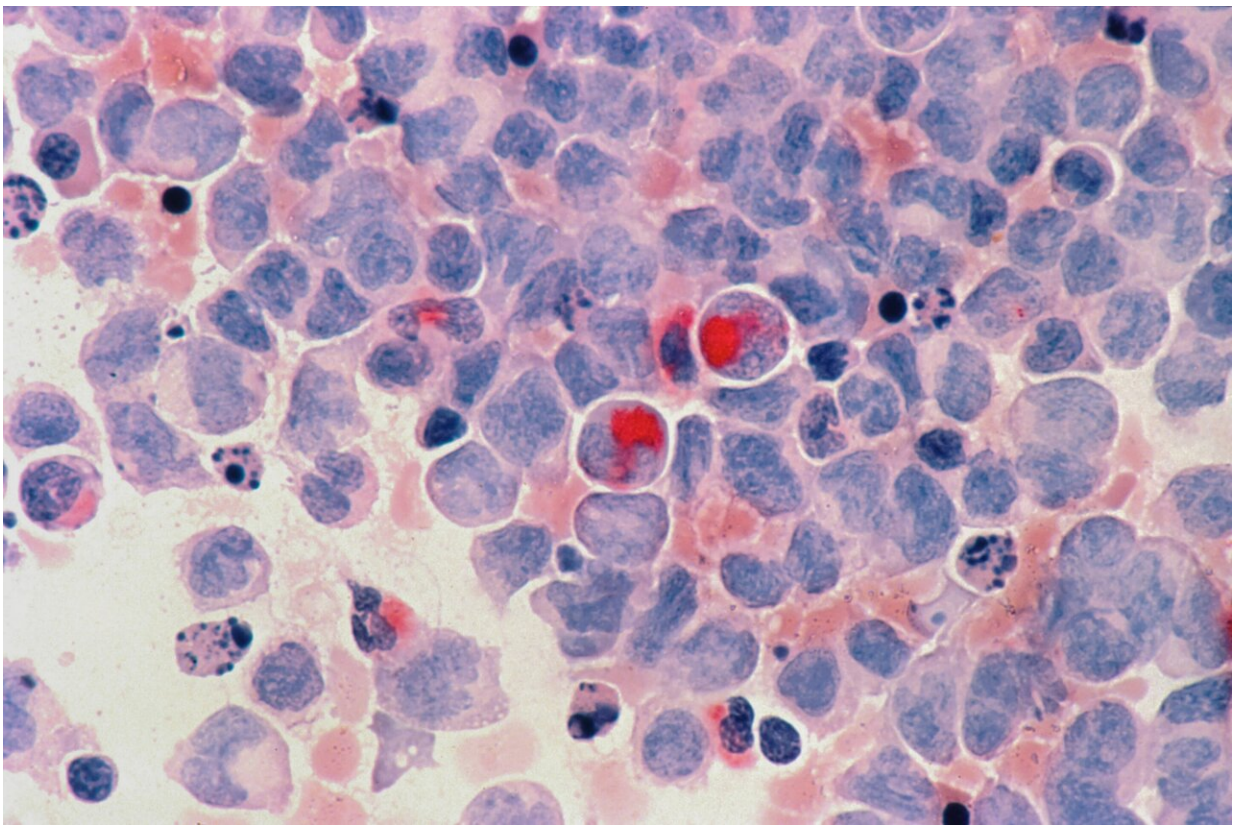

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Over the past two decades, numerous complex cancer therapies called antibody drug conjugates (ADCs) have been tested in clinical trials and

approved for use in patients. Investigators recently performed a comprehensive analysis of multiple scientific databases to outline the potential toxicities associated with these medications. Their findings are published online in *Cancer*.

An ADC has a complex structure comprised of an antibody that targets a protein expressed on cancer cells, a toxic compound to kill the targeted cells (also called a payload or warhead), and a linker to join the two. The clinical efficacy and toxicity of ADCs are affected by each component.

In 2000, gemtuzumab ozogamicin was the first ADC approved by the US Food and Drug Administration, and more than a dozen ADCs have been approved worldwide to date. To investigate the side effects associated with different ADCs, a team led by Prof. Hong Zhu of Xiangya Hospital, Central South University, in China, conducted a systematic review and meta-analysis of published clinical trials of ADCs that reported treatment-related toxicities.

The researchers uncovered 169 relevant trials involving 22,492 patients. The incidence of treatment-related adverse events was 91.2% for all events and 46.1% for serious adverse events (grade 3 or higher). The most common adverse events overall were lymphopenia (too few white blood cells), nausea, neutropenia (too few neutrophils, a type of white blood cell), vision blurriness, and peripheral neuropathy (nerve pain in the hands and feet). The most common serious adverse events were neutropenia, hypoesthesia (insensitivity), thrombocytopenia (too few blood platelets), neutropenia with fever, and lymphopenia. Certain ADCs were linked with higher average incidences of adverse events.

"Different ADCs appear to vary in their treatment-related adverse events. Our results provide an important reference for clinicians and patients on how to address ADCs' toxicity in clinical practice," said Prof. Zhu.

More information: Treatment-related adverse events of antibody drug conjugates in clinical trials: a systematic review and meta-analysis, *Cancer* (2022). DOI: 10.1002/cncr.34507