SCLC XENOGRAFTS: A USEFUL TOOL

Small-cell lung cancer (SCLC) is an aggressive form of lung cancer with a high metastatic potential. Treatment with chemotherapy can produce high response rates, but potential relapse rates are also high due to disease recurrence. The standard first-line treatment for SCLC is cisplatin or carboplatin in combination with etoposide. Patients who have relapsed or individuals who do not respond to first-line chemotherapy can be treated with topotecan. Phase II and III studies have confirmed the efficacy of topotecan as second-line treatment for SCLC. The management of patients with initial or relapsed SCLC, however, remains challenging.

Preclinical assessment is important for developing new anti-tumor drugs. Nemati and colleagues assessed whether the genes involved in response to topotecan-based chemotherapy in a panel of human SCLC xenografts could be useful for guiding future clinical assessment. "Prediction of human tumor response from preclinical data could reduce failure rates of clinical development of new anticancer drugs," commented the authors. Of the six human xenografts that were studied, three were sensitive to combined etoposide, cisplatin and ifosfamide and three were resistant. Topotecan was combined with the ifosfamide-based regimen, and in three of five xenografts ifosfamide improved the efficacy of topotecan and complete responses occurred. The combination of topotecan and cisplatin resulted in improved efficacy in two of the four mouse xenografts. However, the cisplatin and topotecan combination was lethal in all treated mice.

In conclusion, these xenografts retained the characteristics of human SCLC and represent a useful tool for evaluation of new drugs or new treatment combinations.

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Original article Némati, F. *et al*. Clinical relevance of human cancer xenografts as a tool for preclinical assessment: example of *in-vivo* evaluation of topotecan-based chemotherapy in a panel of human small-cell lung cancer xenografts. *Anti-Cancer Drugs* **21**, 25–32 (2010)