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Liposome-encapsulated doxorubicin in metastatic breast cancer

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Keywords

Cardiotoxicity, doxorubicin, liposome, metastatic breast cancer

Context

Encapsulating chemotherapy agents within liposomes offers the potential for reduced toxicity and improved efficacy. This is due to the preference for liposomes to exit the circulation in tissues where capillary junctions have been disrupted and are not tightly bound, i.e. areas of tumour growth. Cardiac toxicity is a major side effect of doxorubicin, one of the most active chemotherapy agents in the treatment of breast cancer. The aim of this study was to determine whether liposome-encapsulated doxorubicin (LED), combined with cyclophosphamide, reduced doxorubicin cardiotoxicity while maintaining antitumour efficacy in first-line treatment of metastatic breast cancer.

Significant findings

Cardiac toxicity was significantly reduced in patients receiving LED in combination with cyclophosphamide (LEDC) (6% versus 21%, $P = 0.0002$), as was grade 4 neutropenia (61% versus 75%, $P = 0.017$). Antitumour efficacy of LEDC versus conventional doxorubicin in combination with cyclophosphamide was comparable at all levels assessed: objective response rates (43% versus 43%); median time to progression (5.1 versus 5.5 months); median time to treatment failure (4.6 versus 4.4 months); and median survival (19 versus 16 months). The authors concluded that LED improves the therapeutic index of doxorubicin by significantly reducing cardiotoxicity without compromising antitumour efficacy.

Comments

This was a reasonably large, well run study providing further data supporting the advantages of altering the delivery systems of commonly used anticancer drugs. A number of drugs have now been successfully encapsulated by liposomes, and in most cases this appears to improve the therapeutic index of the drug, largely by reducing toxicity. Certainly, reducing the cardiac toxicity of doxorubicin is an important goal as the drug becomes more extensively used, in the adjuvant setting and in possible combination or sequence with HerceptinR. The next step will be more difficult and more important: to determine whether it is safe to substitute liposomal doxorubicin for standard doxorubicin in the adjuvent setting.

Methods

Randomised controlled trial; assessment of objective tumour response rates, time to progression, and survival; serial multigated radionuclide angiography scans; congestive heart failure diagnosis

Additional information

Gabizon AA: **Stealth liposomes and tumour targeting: one step further in the quest for the magic bullet.** *Clin Cancer Res* 2001, **7**:223-225.

References

1. Batist G, Ramakrishnan G, Rao CS, Chandrasekharan A, Gutheil J, Guthrie T, Shah P, Khojasteh A, Nair MK, Hoelzer K, Tkaczuk K, Park YC, Lee LW, for the Myocet Study Group : Reduced cardiotoxicity and preserved antitumor efficacy of liposome-encapsulated doxorubicin and cyclophosphamide compared with conventional doxorubicin and cyclophosphamide in a randomized, multicenter trial of metastatic breast cancer. J Clin Oncol. 2001, 19: 1444-1454.