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CARDIOTOXIC Study: Relationship Between Cancer Therapy and CVD

Certain classes of anticancer drugs are cardiotoxic, especially the anthracycline group of chemotherapeutic agents. In most cases, the cardiotoxic effect of these agents comes to light when the patient undergoes surgery for cancer and then develops heart failure, arrhythmias or dies. Most oncologists and surgeons make it a point to ensure that patients with risk factors for heart disease undergo some type of screening when they are treated with anthracycline drugs and about to undergo surgery. However, who should be screened, when and how common cardiotoxicity occurs from these agents remains unknown.

This study was undertaken to determine the frequency of serious adverse effects of cardiotoxic chemotherapeutic drugs and the outcomes. This prospective study included 865 patients aged 54.7 ± 13.9; of whom 16.3% were men. The patients were scheduled for chemotherapy with moderate to high-risk cardiac toxic agents. The injuries to the myocardium were classified based on biomarkers (troponin, N-terminal natriuretic propeptide) and LV function as determined by an echo. Four groups of myocardial damage/dysfunction were considered.

Cardiotoxicity was defined as the appearance of worsening or new myocardial damage or altered myocardial function from baseline during follow up. The median follow-up was for 24 months.

The results showed that cardiotoxicity was seen in 37.% of patients during follow up; 31.6% with mild, 2.8% with moderate and 3.1% with severe myocardial damage/dysfunction. The overall mortality in the severe cardiotoxicity group was 2./9 deaths per 100 patients year vs 2.3 deaths per 100 patients year in heroes of the groups.

This was one of the first studies with concrete data to show myocardial damage following chemotherapeutic agents. Even though most patients with myocardial damage/injury presented with biochemical or functional changes in the heart, researchers noted that severe cardiotoxicity was rare and that a strong correlation to cardiotoxic agents was not possible. It has always been assumed that the use of cardiotoxic drugs leads to severe myocardial injury, but this clearly was not the case based on results from this study.

However, although severe cardiotoxicity was rare with these agents, there was a strong correlation with death. This means that patients who suffered severe myocardial damage were more likely to die compared to patients who suffered a mild or moderate myocardial injury. Patients with milder forms of myocardial injury were not at risk for death but they still require follow up.

The conclusion is that patients who receive chemotherapy with cardiotoxic drugs should have comprehensive monitoring and the cardiac risk factors should be treated before the start of therapy. This study noted that severe cardiac toxicity from the chemotherapeutic drugs was rare but it could be that patients with severe heart disease were not included in the study to begin with. It would have been unethical to include patients with poor heart function in a study looking at cardiotoxic drugs. Finally, the study only looked at myocardial injury based on biochemical and functional alterations; the ultimate criteria for assessing myocardial injury involves histopathological studies; which was not done.

Source: European Heart Journal
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