

The results for DFS were more dramatic than with overall survival, demonstrating the advantage of including a multiplicity of endpoints in any given clinical trial, in addition to the gold standard endpoint of overall survival.

VII. WHERE EFFICACY OF TWO DIFFERENT TREATMENTS IS THE SAME, CHOICE OF TREATMENT SHIFTS TO THE TREATMENT THAT IMPROVES QUALITY OF LIFE – THE RING STUDY

In a study of breast cancer, Ring et al. (24) used the endpoints of DFS and overall survival. The study had two arms, as indicated below.

- Arm A. Chemotherapy followed by surgery
- Arm B. Chemotherapy (no surgery).

The results are shown in Table 14.2.

The study found no significant difference in DFS between the two groups. Also, the study found no significant difference in overall survival between the groups. The large P values mean that the significance of the difference was low. In other words, it is possible for a study to result in a slight difference in two study arms, where this slight difference had a tiny P value, meaning that the slight difference was very convincing. But in this study, there were slight differences in the values for 5-year DFS and 5-year overall survival, and these slight differences were not statistically convincing.

The investigators arrived at the following useful result. The result is that women can be reasonably counseled on the benefits of treatment with no surgery. In the words of Ring et al. (25) “[t]he avoidance of surgery altogether would eliminate common postoperative problems including chronic arm morbidity, pain, seroma formation, and

Table 14.2 The Ring study

	Disease-free survival	
	5-year DFS	10-year DFS (P = .7)
Chemotherapy, then surgery	64%	52%
Chemotherapy (no surgery)	61%	46%
	Overall survival	
	5-year overall survival	10-year overall survival (P = .9)
Chemotherapy, then surgery	74%	60%
Chemotherapy (no surgery)	76%	70%

²⁴ Ring A, Webb A, Ashley S, et al. Is surgery necessary after complete clinical remission following neoadjuvant chemotherapy for early breast cancer? *J Clin Oncol.* 2003;21:4540–4545.

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