effects or complications. Thus, only 27% of this sample completed a 5-year course of tamoxifen when it was offered.

In the international survey of radiotherapists described above, North Americans were more likely to recommend tamoxifen as well as radiotherapy [18]. For example, 74% of academic and 76% of community-based radiotherapists in North America recommended tamoxifen for a DCIS of less than 2.5 cm with grade 3 histology and margins of 1 to 3 mm compared with 39% of academic 49% of community-based radiotherapists in Europe who made this recommendation. On both sides of the Atlantic, radiotherapists were more likely to recommend tamoxifen for tumors of higher grade or narrower margins.

Is DCIS overdiagnosed and overtreated in the USA?

DCIS is diagnosed more frequently and treated more aggressively in the USA than elsewhere. It is plausible that differences in the incidence of DCIS in countries where routine screening mammography is well established are related as much to frequency of biopsies for suspicious lesions as to the frequency of mammography.

The question of whether DCIS is diagnosed too frequently or treated too aggressively in America depends on whether these practices result in better outcomes. The outcome of greatest interest, of course, is breast cancer mortality, but because the reported incidence of death from breast cancer in patients diagnosed with DCIS is somewhat less than 2%, it will be difficult to detect differences between large populations in which there are multiple variables in addition to the method of diagnosis and treatment that might account for any observed small differences. This problem is evident in the comparison of mortality in patients diagnosed with DCIS during two periods in the USA [2]. Among women in SEER who were diagnosed with DCIS from 1978 to 1983, mortality from breast cancer was 1.5 at 5 years and 3.4 at 10 years. For the interval 1984 to 1989 these rates were 0.7 and 1.9, respectively. In the later period, the use of mammography increased rapidly and mastectomy for DCIS decreased. Was mammography improving the prognosis of patients with DCIS because of ‘earlier’ detection, or were more cases of DCIS with low malignant potential being diagnosed, thus exaggerating the apparent survival benefit? This cannot be determined. On a more positive note, outcomes that affect quality of life, such as the use of breast-conserving surgery without axillary lymph node dissection, are clearly improving.

Conclusion

Although one might conclude that the aggressiveness of treatment decreased in the 1980s in the USA as a result of decreased mastectomy rates, the opposite can be said of the period after 1991, first with increasing use of radiotherapy and now tamoxifen. There is reason to believe that physicians are becoming more selective in their use of therapies. Comedo DCIS has remained relatively constant in the face of an overall increase in DCIS, and as of 1999, 33% of patients with comedo carcinomas did not receive radiotherapy [7]. However, the survey of radiotherapists suggests that, at least among American academic physicians, radiotherapy is limited more and more to this group of patients [18]. Tamoxifen for DCIS has not been as widely and quickly embraced as radiotherapy was a decade ago. It is plausible that as more information is generated on the natural history of DCIS, practice patterns in the USA will once again change. It is less certain that the incidence of DCIS will decrease.