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Editorial

Alcohol and Breast Cancer

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IN THIS issue, Ferraroni and colleagues, pp. 1403–1409, also present the results of a large case control study, accumulated in the early 1990s, which suggest a 30% increase in the risk of breast cancer of women of all ages associated with alcohol consumption among Italian women. Overall this is entirely consistent with the findings recently published of the pooling of six cohort studies [1] from the US, Canada, Sweden and the Netherlands. If this association is causal, they then suggest that 12% of breast cancer incidence in Italy might be attributable to alcohol consumption. To put this figure into some perspective, the American Public Health Association [2] estimates the attributable proportion of breast cancer incidence as 7% to late first term birth, 5% to nulliparity, 2% to high-doses of radiation and it also estimates that 12% of postmenopausal breast cancer is attributable to obesity in the US. Hence, this Italian estimate could be important, for few risk factors offer any serious practical hope of enabling a decrease in incidence and 12% is about as high as you get in breast cancer for a single possible risk factor.

The contrast between this common female cancer and cervical and lung cancer, for example, is stark. These latter cancers have strong and common causal exposures and hence attributable risk fractions of up to 90%. The incidence of breast cancer remains common among women at low ostensible risk and hence the search for effective interventions to prevent the disease is intense. We must be wary, however, of the triumph of hope over experience. There is no major campaign, for example, suggesting obesity as a major avoidable risk factor for breast cancer in the US. Should there be any such campaign for alcohol consumption among Italian women, who apparently drink more than most?

Alcohol is clearly an integral part of many peoples civilised life and while it is clear that metabolism is different among women, it can none the less occupy an equally important part of life for women as it does for men. It seems odd *primie facie* to regard alcohol as a prime avoidable risk factor for breast cancer. Can we learn anything from a comparison with hormone replacement therapy (HRT) [3]? Both consumptions apparently increase breast cancer risk and both may reduce risk of coronary heart disease (CHD). Both alcohol and HRT improve the quality of womens' lives and alleviate certain

unwanted symptoms, but the benefits are quite different, although probably comparable. Alcohol is social, cultural and convivial, often associated with eating, while HRT, it is suggested [4], enables women with (or possibly without) menopausal symptoms to be more social and convivial any-time. Again, as with obesity in the US, there is no concerted suggestion that HRT use among such women should be avoided in order to reduce the risk of breast cancer, although the excess risk for women on HRT may be much greater than for women who drink. These balances are clearly complex for individuals and even more difficult to assess when the causality of the relationship remains quite unclear.

As with HRT, the relationship of risk with duration, or indeed of amount, of alcohol use is obscure and clearly is not very strong [5]. As with HRT and its possible effect on CHD, the relationship of alcohol and breast cancer could be attributable to confounding [6]. In the case of breast cancer, since so little of the incidence is explained by exposure to known risks factors, confounding with unknown risk factors is more plausible. Complex aspects of past dietary preferences, which could easily be correlated with alcohol consumption, are plausible. With HRT and CHD, possible incomplete or inadequate measurement of well-known risk factors is more plausible [7]. Either way strong looking associations, often observed, could well be illusory in both examples.

The point is, of course, that women use HRT because, in their own social and personal environment, they deem its use and the attributable consequences, to be worth the possible particular excess risks for them. And breast cancer usually ranks high in these assessments of risk [8]. In some cultures this means a high prevalence of HRT use and in others hardly any use at all [9]; although the relative risks presumably remain the same. Thus, imagining that in one culture, such as in Italy, it is going to be sensible to suggest a widespread change in alcohol consumption is likely to be very problematic indeed. Alcohol use is clearly also, in part, culturally determined, that is why this study is interesting—because Italian women appear to drink more than most, presumably largely for cultural reasons. And they do so because in their assessment, implicit or otherwise, it is apparently worth the possible risks to them.

The advice given in this paper, by Ferraroni and colleagues, is for pre-menopausal women who consume more than two drinks a day to consider a reduction in consumption.

Such a strategy would seem wise by any criterion, not least because of the known causative effects of alcohol on liver disease and digestive cancers. The American Cancer Society (ACS) study of half a million people followed since 1982, begins to show an increase in mortality from all causes, for women at around two drinks per day [10]. But if all such women in Italy did reduce consumption to below two drinks a day, the attributable effect on total breast cancer incidence, even if entirely causative, could not be a 12% reduction because that is based on all alcohol consumption. It would have been useful if the authors could tell us the actual figure, but I would guess around 3–5%. Moreover some epidemiological data suggest the possibility that the observed association of low levels of consumption is due to confounding, whilst that for high consumption levels causally associated [11].

Thus such a change in drinking 'strategy' for Italian women is only marginally supported by these (none the less apparently strong) results and then with an association which may still not be causative. Clearly the notion, which is implicit in the 12% attributable risk figure, that all women should abstain from this prime cause of breast cancer, is neither sensible, achievable nor remotely justifiable on health grounds. The ACS study, for example, suggests that all cause mortality is a full 20% lower among middle aged women who drink one drink per day compared with women who abstain.

The essential message for women remains almost the same as before after assimilating this study. However, it does seem now more probable, since dietary confounding is slightly less plausible in this study, that alcohol consumption does itself increase the risk of breast cancer. But we also know from other sources that moderate amounts almost certainly decrease the risk of heart disease—which is a more common disease among older women anyway. For individual women, changing their drinking habits sensibly cannot, even assuming causation, affect their risk of breast cancer by much—that risk is essentially decided by other circumstances, either unknown or unalterable. Knowing the risk remains important but unfortunately is still not of much use for making decisions on lifestyle (In obvious contrast, knowing the precise causative effects of cigarette smoking, as we do, is very useful indeed for those who can stop.)

The research community needs now to concentrate much more on the causality argument between alcohol and breast cancer. A million new excellent observational studies showing a strong association would not help us, unless 'properly' adjusted for confounding. The evidence for this can only be advanced in practice by assiduous analysis of all possible

confounders in such studies as these and reporting the results in detail on the estimated odds ratios before and after this kind of adjustment [12]. There does seem to be a particular problem with alcohol, in contrast to HRT, in that people want to believe that alcohol is bad for health. Hence, on the whole, these kinds of rigorous refutational analyses on observed associations are not very common for the putative bad effects of alcohol. Consider, in contrast, the obsessional refutational effort being committed to third generation oral contraceptives and deep vein thrombosis (DVT), a relatively trivial public health problem, (although clearly not for the few with DVTs.) Is it confounding or is it selective prescribing [13]? The world waits with baited breath. Whether alcohol causes breast cancer is, on the other hand, a very important question for women and deserves just this kind of analytical attention.

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