EDITORIAL

We are What we Eat - but What do we Eat? - A Role for Coordination of Cancer Registration and Dietary Intake

In the present issue of the journal, Sengupta (2004) focuses on the cancer preventive potential of allium vegetables, while Esiyok et al (2004) point to use of herbs for control of disease. What we eat is clearly of prime importance in determining our risk of developing diabetes, cardiovascular ailments or neoplasia and the very considerable variation in dietary habits is one of the accepted factors underlying the differences in cancer incidence in different countries of the globe (World Cancer Research Fund/American Association for Cancer Research, 1997).

Cross-county comparisons may provide pointers to risk factors for development of different cancers. For example, data for Europe (Parkin et al., 1997) suggest a link between colon cancer and adenocarcinoma development in the lung but not the oesophagus (Moore et al., 1998). International comparisons have further indicated that different risk factors may be associated with adenocarcinomas of the oesophagus versus the proximal stomach, marked rate variation implying a substantial environmental component to recent changes in incidence (Corley and Buffler, 2001). While it has been argued that techniques drawn from population ecology have a value in epidemiological studies of human disease (Hunter et al., 2003), ecological methods by themselves are likely to be of more value for hypothesis generation than for hypothesis testing. For this we need epidemiological approaches with rigorous statistical analyses.

Table 1. Variation in Food Consumption Items in Japan

Parameter	Low	High	%
Energy	1898 (Chugoku)	2004 (Tokyo)	5.6
Total Protein	69.1 (Kitakyushu)	75.7 (Tokyo)	4.5
Animal Protein	36.6 (Kitakyushu)	43.6 (Hokkaido)	10.1
Total Fat	50.2 (Shikoku)	58.8 (Tokyo)	17.1
Animal Fat	25.7 (Kitakyushu)	29.0 (Tokyo)	16.7
Calcium	509 (Kitakyushu)	572 (Tokyo)	12.4
Iron	7.6 (Chugoku)	8.9 (Tokyo)	17.1
Vitamin A	829 (Kitakyushu)	1,133 (Tokyo)	36.7
Vitamin C	94 (Chugoku)	117 (Tokyo)	24.5
Salt	10.6 (Chugoku)	12.3 (Tokyo)	16.0
Fibre	13.3 (Kitakyushu)	15.8 (Tokyo)	18.8

The methodology for cancer registration is sufficiently standardized to allow meaningful comparisons of cancer incidence, and considerable variation is evident even within countries like Japan which are homogeneous in terms of ethnicity and cultural background (see Fig 1). Data are available from Government sources suggesting that this is partly due to differences in dietary intake of nutrients, which may vary in the order of 15-30%, as shown for selected items in Table 1. Definite conclusions can only be drawn, however,

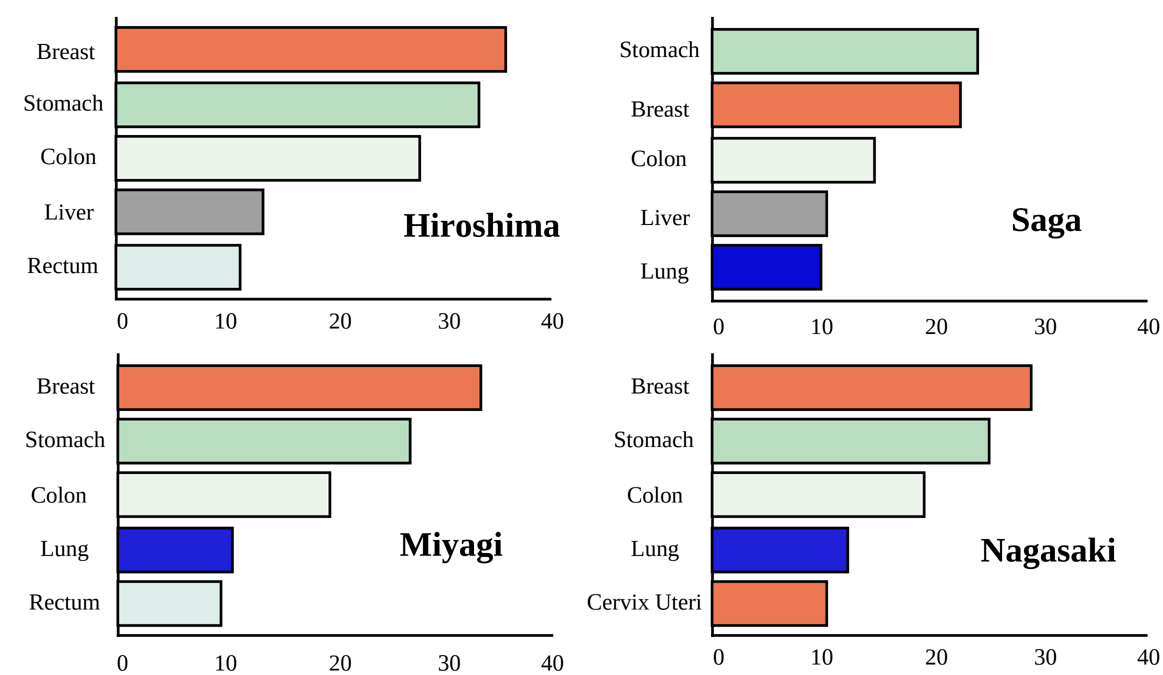

Figure 1. Variation in the Five Most Prevalent Cancers in Females in Selected Registries in Japan

if data for both cancer incidence and diet are available to the same team of investigators. This was the case in the study of food consumption and gastric cancer mortality in five regions of Japan, which provided concrete evidence of regional differences accounting partly for the geographic variation in gastric cancer mortality (Tsubono et al., 1997). Plasma levels of beta-carotene and alpha-tocopherol, and possibly alpha-carotene, lycopene, and ascorbic acidappear to be of particular importance in this respect (Tsubono et al., 1999).

The very much wider variation which exists between countries regarding intake of specific foodstuffs, including herbs and particular types of vegetables, might thus be expected to provide very revealing clues to modification potential. The striking paradox in epidemiologic research that despite strong associations between diet and cancer in ecologic studies only weak links have been found in many within-country case-control and cohort studies is a major rationale for international studies of diet, biomarkers and cancer risk. The feasibility of collecting dietary and biomarker data from individuals living in countries having markedly different dietary patterns and cultures has been explored by Satia et al (1999), focusing on the United States, China and Costa Rica. However, such examples of international collaborative research involving multiple countries are very limited and a great deal more could be achieved in this area.

One major research aim is development of semi-quantitative food frequency questionnaires, as exemplified by those employed to determine variation in nutrient intakes between urban and rural areas of Chongqing, China (Zhou et al., 2004). A number of related papers have been published in the APJCP, for example concerning reproducibility (Kim et al., 2003) and application for specific age groups (Tokudome et al., 2004). The question now is how this could be further promoted so that the wealth of differentials available in the Asian Pacific could be effectively accessed for cancer prevention purposes. Since the best established epidemiological research groups in the majority of countries of Asia are based in cancer registries, their effective interaction with the aim of standardization of methodology for dietary assessment would appear to be essential. Should answers to the question of ‘What do we Eat?’, with reference to what cancers and other chronic diseases we suffer from, be in the domain of the cancer registries? If so then we must argue strongly for more resources for cancer registration.

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