
MEETING REPORT

‘Cancer Screening – Past, Present and Future’ 13th International Symposium of the Foundation for Cancer Research, Japan

Tadao Kakizoe

Introduction

On April 26-28th, a meeting entitled ‘Cancer Screening – Past Present and Future’ was held at the International Lecture Hall of the Foundation for Promotion of Cancer Research, Japan. Over 40 speakers took part in this 13th International Symposium of the Foundation, thirteen from outside Japan, and together with a large number of invited discussants they ensured a lively debate of many aspects of current cancer screening.

Session 1: General Coverage and Screening Effectiveness

After Takashi Sugimura and Tadao Kakizoe had given graphic examples from their own personal experience of the whys and wherefores of cancer screening, in their respective welcome and opening addresses, Session 1 opened with general overviews of cancer screening, one from Matti Hakama with his wide experience of screening efforts in Finland and elsewhere in Europe, and the other from Suketami Tominaga, who concentrated on developments in Japan. Both highlighted the problems with achieving a comprehensive approach and the need to consider uncertainties in giving advice to the general public. This was followed by a number of papers concentrating on various aspects of effectiveness, Noel Weiss describing study design considerations necessary for evaluation purposes. Judith Wagner covered questions like who, how, at what age, what technology, what setting, what follow-up in her assessment of cost-effectiveness, concentrating attention on the investment nature of screening programs and the necessity to incorporate new technology as it becomes established. Japan is at the forefront of screening efforts in many ways and Ichiro Tsuji gave very concrete evidence of this in his detailed and comprehensive treatment of cost-effectiveness of Japanese screening programs for stomach, uterus, lung, breast and colorectum. However, Hiroyuki Shimizu added a cautionary note in dealing with psychological aspects of mass screening, in this section, emphasising the conclusion from a survey conducted in Gifu prefecture that people have unrealistic expectations in terms of false negative and positive rates.

Session 2: Organ Specific Aspects

Starting off Session 2 on organ specific aspects Joe Selby gave a stimulating account of the successes of colorectal screening in California, stressing the effectiveness of physicians urging their patients to be screened and the advantages of paramedical staff participation. He also introduced the question of choice, especially between sigmoidoscopy and colonoscopy, which was then continued by Hiroshi Saito in bringing the audience up to date in developments with immunochemical fecal occult blood testing, with its proven advantages over the standard guaiac approach.

Unfortunately, Georg Bartsch of Austria was unable to attend to give the conference the benefit of his experience of decreased prostate cancer mortality associated with prostate specific antigen (PSA) screening in the Tyrol, but Hiroki Watanabe was able to point to success in the National Research Project for the Efficacy of Prostatic Screening, a model mass screening program for prostatic cancer in Japan. This was then followed by two papers on breast screening, for which there is ample evidence of efficacy, at least within age-group limits. Edward Hendrick described the essential requirements of quality assurance for this purpose, presenting results of an questionnaire-based cross country comparison organised by the Breast Cancer Screening Network. Practical considerations with actual mammography screening were covered by Noriaki Ohuchi, based on the Miyagi trial which has been of essential help in shaping the planned national mammography screening program in Japan.

The next section on lung cancer screening was characterised by very lively discussion as to the practical reliability of computer tomography and especially spiral CT for detection of very early lesions in lung, particularly in the peripheral regions. Claudia Henschke started off by providing a concise overview of the baseline and annual repeat findings of the Early Lung Cancer Action Project. This features antibiotics use to minimise misdiagnosis of foci of inflammation and

Tadao Kakizoe

the results indicate that the CT approach can very effectively detect exceedingly early lesions. The question of overdiagnosis was, however, raised by many participants, including Tomotaka Sobue, reporting on lung cancer screening in Japan. The general consensus appeared to be that low-dose spiral CT screening has great potential to improve screening efficacy but appropriate methods must be employed to prove that this is the case. The question of the role of randomized trials should play was very passionately debated.

Less controversial, but nonetheless of great interest, were the very good results described by Yoshitaka Tsubono for the photofluorography routinely used for mass screening for gastric cancer in Japan. Here there was substantial evidence of reduction of mortality. Similarly, a very positive conclusion was drawn by Won Chul Lee from the findings of his preliminary studies although he emphasised that there is a great deal of work to be done before systematic stomach cancer screening will be a reality in Korea.

In the section on cervical cancer screening for which there is a wealth of evidence supporting its practical efficacy, Harald zur Hausen concentrated attention on the contribution that expression of the cyclin-dependent kinase inhibitor p16INK4 could make to assessment of the malignant potential of early lesions, not only in the cervix but possibly also in other sites where human papilloma viruses play an etiological role, like the buccal cavity and conceivably also the skin. Actual results of cervical cancer screening efforts in practice were given by Daisuke Aoki, who also briefly introduced criteria for choosing subjects for detection of corpus cancer on the basis of findings of a program started in Japan in 1987. Alexander R Chang then rounded off the section on cervix cancer screening by recounting experiences in overcoming

laboratory problems gained in Hong Kong with introduction of a free community Pap test clinic.

Bringing the session on specific cancers to an end, Tadao Kakizoe referred to the challenge presented by internal organs like the pancreas where, as he vividly illustrated, we are like men dressed for conquering mountains who find themselves unprepared for a swim at the seashore. The conclusion was clear that, while we have an abundance of imaging modalities to help us detect small lesions, which should facilitate effective intervention, there are a great many grey areas which still require elucidation.

Session 3: Perspectives of Cancer Screening

In the third and final session, attention was concentrated on novel approaches in terms of screening technology and tumor markers, as well as identification of high risk populations with the aid of genetic diagnosis and actual management of cancer screening programs.

Continuing the emphasis on lung cancer screening, Kunio Doi gave an overview of the difficulties physicians face in interpreting radiographic images and the contribution that computer-aided diagnosis can make in providing a second opinion. The possibility of detecting 'missed' lesions and thereby decrease false negatives was emphasized. Practical aspects of the use of helical CT for identification of early lung cancer was then covered by Noriyuki Moriyama, with convincing data for the superiority of CT as opposed to chest X-rays for peripheral lesions. In conjunction with sputum cytology for squamous cell carcinomas of the bronchi, the possibility of mass screening with mobile units was mooted. Again stress placed on the Computer Aided Diagnosis of Medical Images System.



Speakers at the 'Cancer Screening - Past, Present and Future' 13th International Symposium of the Foundation for Cancer Research, Japan

One of the most promising markers for stomach cancer appears to be serum pepsinogen, as argued by Kazumasa Miki on the basis of a company-based screening trial performed between 1991 and 1996. Ken Yamaguchi then highlighted the possibility of employing pro-gastrin-releasing peptide as a specific tumour marker for small-cell lung cancer patients, a correlation being found with therapeutic responses, pointing to alternative roles for screening approaches.

The thorny question of how to best serve individuals at inherited risk of cancer because of their genetic background was addressed by Robert A Smith, drawing on the wealth of data available to the Cancer Control Department of the American Cancer Society. As eloquently described, the clinical, public health and social challenges of screening individuals for the presence of mutations known to impact on cancer risk clearly will increasingly require decision-making, with new educational and policy initiatives focused on service providers, the public and policy makers. The practical significance of genetic alterations was then illustrated by Shozo Baba, detailing findings for a large number of the cancer-predisposing genes cloned over the last 10 years. The possibility of using an understanding of the molecular biology of neoplasia in high-risk individuals to provide pointers to therapeutic intervention was also thereby discussed.

With regard to actual implementation of screening programs, the symposium was fortunate in having two individuals with very long and wide experience. Thus Anthony B Miller provide a wealth of details from the Prostate, Lung, Colon and Ovary trial of the US National Cancer Institute, with annual PSA and digital rectal examinations, PA chest x-rays, flexible sigmoidoscopy, transvaginal ultrasound and CA 12 blood tests, respectively. He also presented information on pilot-studies which are underway to determine cost-effectiveness and health related quality of life. Continuing in the same vein Gilbert H. Friedel then painted a stimulating picture of successful screening programs as evidenced by the cancer control approach adopted by the state of Kentucky. Concentrating on breast and cervical cancer he highlighted differences between geographical areas and how efforts need to be focused on reaching target populations as well as showing how increased performance has resulted in an increase in the proportion of early stage disease, as well as survival and quality of life, all at reduced cost of treatment.

Summary of the Symposium

A summary of the wide area covered in the symposium was then impressively presented by Matti Hakama, focusing on the problems that still need to be overcome but giving equal weight to the success that has already been achieved. At the close of the proceedings, there was a very positive feeling. 'Cancer Screening – Past, Present and Future' had been a resounding success.