Saliva test could diagnose cancers

Abi Berger *BMJ*

Looking for mitochondrial genetic mutations in bodily fluid could be a promising new way to detect cancers. David Sidransky and his team from Johns Hopkins University School of Medicine in Baltimore, Maryland, have discovered that genetic mutations in mitochondrial cells from cancers are highly prevalent and easily detectable in urine, sputum, and bronchial secretions.

Professor Sidransky believes that this observation could provide a powerful molecular marker for non-invasive detection of cancer (*Science* 2000;287:2017-9).

Mitochondrial DNA is derived from the mother and is present at very high levels in cells. Most copies of mitochondrial DNA are identical at birth. Proper functioning of any organism depends on the full complement of mitochondrial DNA being expressed, so that even small mutations of the

mitochondrial genome can have profound effects.

Nuclear mutations in cancer cells are not very prevalent and are therefore difficult to detect, but as mitochondrial mutations are highly prevalent and stable they are easier to pick up.

Several genetic mutations in mitochondrial cells have recently been identified in cells derived from human colonic tumours. This suggested to David Sidransky, professor of oncology and otolaryngology, that mitochondrial mutations might also be prevalent in other common cancer types.

To test this hypothesis, Professor Sidransky's team took urine, sputum, and bronchial secretions from patients with bladder, head and neck, and lung tumours and examined them for mitochondrial mutations.

"Looking for rare nuclear mutations in samples which contain relatively few cancer cells is difficult, but it is easier

to detect mitochondrial mutations because even with a small number of cancer cells, there are so many copies of the mutations," explains Professor Sidransky. "It's a much easier way to find the needle in the haystack."

Professor Sidransky's team took bodily fluids from 3 patients with bladder cancer, 9 patients with head and neck tumours, and 10 patients with lung cancer. They detected mitochondrial mutations in 100% of their samples. They also found that mitochondrial mutations were up to 220 times more abundant than nuclear p53 mutations in the same samples.

When conventional nuclear cytological methods alone are relied on, the detection rate of lung cancer is as little as 20% from bronchial secretions. If this new method can be validated and confirmed in a large prospective study and if a high throughput assay is developed, the screening for and detection of common cancers could be greatly improved. □

Coordinated global action could end malnutrition in young children

Phyllida Brown *London*

One billion children will be permanently handicapped by malnutrition between now and 2020 unless the United Nations, donors, and national governments start to act, warns a report published this week.

The report, commissioned by the United Nations, strongly criticises international agencies and others for failing to curb a major avoidable problem.

Worldwide more than 150 million children of preschool age are underweight and 200 million children have stunted growth. One in 4 babies born in developing countries have intrauterine growth retardation and are at risk of mental impairment, the report says.

"The current approach for coping with the world malnutrition problem completely misses the point with the assumption that poverty reduction is the way to go," said Professor Philip James, chairman of the Commission on Nutrition Challenges of the 21st Century, which produced the report.

Instead, said Professor James, more sharply focused and coordinated action by governments and international agencies could, with modest investment, end malnutrition in preschool children by 2020.

The commission's sharpest criticism is reserved for the United Nations' own agencies, such as the Food and Agriculture Organization and the World Health Organization.

"The Commission is aware of a number of uncoordinated approaches by different agencies. These often seem to be based on institutional rivalry and different disciplinary and sectoral approaches rather than on collaboration and the development of a cohesive effort," says the report. □

Ending Malnutrition by 2020: An Agenda for Change in the Millennium. Summary and full report are both available at www.iof.org/php/.

Japan to allow in foreign nurses to care for old people

Joe Lamar *Tokyo*

Japan is planning to ease its strict immigration rules to allow more nurses into the country to care for its ageing population.

The ruling Liberal Democratic party and its coalition partners approved a proposal last week by the Justice Ministry to change visa and residency regulations so that non-Japanese people can be employed in a wider variety of jobs.

Under existing regulations, working visas are restricted mainly to people deemed to have "expertise" in the fields of academia, high technology, and journalism. The Justice Ministry said that this should be expanded to include nurses who can provide care for elderly people, as well as workers in the fields of agriculture and fisheries.

The government says that the shift is a reflection of globalisation and the greying of society. Because Japan has the longest life span in the world (83 years for women) and one of the lowest birth rates (1.39 children per woman), it is ageing fast.

By 2020 it is estimated that more than 1 in 4 of Japan's 120 million population will be over 65. As many of these people will require care, the Health and Welfare Ministry expects that it will need many more than the 32 000 nurses who

work in Japan at present.

According to media reports, work will begin at the end of the month to revise the Immigration Control and Refugee Recognition Act so that the changes can be implemented as part of a new five year plan.

Accepting an influx of workers from overseas is likely to be a difficult decision for Japan, which prides itself on its ethnic homogeneity. Currently, foreign residents account for less than 1.5% of the population. □

The ageing of society: Japan may use foreign nurses for care

PAUL QUAYLE/PICTURE