

News In Brief



A BIRD FLU IN THE CAT: ARE WE DUE FOR AN AMBUSH?

Reports have arisen of domestic cats dying from avian influenza H5N1 virus. While the evidence is as yet incomplete, there is a possibility that cats could play a role in the spread of avian flu. 14 out of 15 cats in a household near Bangkok died in February 2004; all had stereotyped features of weakness, vomiting and haemoptysis before dying. Necropsy revealed H5N1 virus in three of the cats and the severity of H5N1 infections in felines has been experimentally confirmed in the Netherlands. This may have implications both for H5N1 transmission across geographical regions, as well as for facilitating H5N1 adapting for efficient human-to-human transmission.

(Source: Nature (2006) 440:741-742)

AVIAN FLU VACCINE – AT A PRICE

Results of a multicentre, randomised trial of a

vaccine against the H5N1 avian influenza virus report an apparent protective immune response – but only at an unusually high dose and only in just over half of the people vaccinated.

Led by Dr John Treanor of the University of Rochester, Minnesota, the study found that the best response came after two 90-microgram doses. However, Dr Gregory Poland of the Mayo Clinic said the dose needed to produce “acceptable immunogenicity” is 12 times the amount used in regular seasonal flu vaccines.

Given the world’s limited capacity to produce vaccines, this means only 1.25% of the global population could be vaccinated if it were required, with only half of those effectively immunised.

Researchers are pursuing dose-sparing approaches – perhaps by adding an adjuvant – as well as studying faster methods of vaccine production. *(Published in the New England Journal of Medicine.)*

(Source: CNN Health)

SUNSHINE, VITAMIN D AND TB

It has been known since the late 19th century that sunshine can treat Tuberculosis (TB), a finding for which Neils Finsen was awarded the 1903 Nobel Prize. Recent work by Liu and co-workers, published in *Science*, has shown a possible mechanism for the phenomenon.

In summary, many organisms produce antimicrobial peptides (AMPs) which can kill pathogens. Among these is cathelicidin (also known as L-37), whose levels are boosted in neutrophils and skin keratinocytes by the presence of active Vitamin D (that is, 1,25-D3). Since sunlight plays a role in the generation of active Vitamin D, this provides an explanation for TB-related observations besides the above. For example, reduced vitamin D status is a known association for susceptibility to *Mycobacterium tuberculosis* infection.

Liu *et al* also suggest that this mechanism may underpin the variable susceptibility of different ethnic populations to TB. Serum levels of 25-hydroxy-D3 in African Americans were found to be significantly lower than in a Caucasian cohort, and the serum had reduced *in vitro* activity for inducing cathelicidin mRNA. The *in vitro* deficit could be rectified by supplementation of 25-hydroxy-D3 to a physiologic range.

Taken together, this may have implications for reviewing the recommended daily intake of vitamin D, especially if its immunological properties are to be optimally exploited.

(Source: *Science* (2006) 311:1770-1773)

UNEXPECTED BENEFIT

A drug used to treat and prevent osteoporosis in post-menopausal women has been found to also reduce the risk of breast cancer.

Evista (raloxifene) – manufactured by Eli Lilly – proved as good as Tamoxifen (the only FDA-approved drug for prevention of breast cancer) for reducing the risk of invasive breast cancer. Moreover, unlike Tamoxifen, Evista does not increase the risk of endometrial cancer.

Women who took Evista also developed fewer cataracts and blood clots, including pulmonary emboli.

Results of the Study of Tamoxifen and Raloxifene trial, which enrolled almost 20,000 women, were deemed so important that researchers announced their findings at a press conference instead of waiting until June for a medical conference or for publication in a journal.

(Source: *CNN Health*)

DIETARY ADVICE

A Comprehensive Assessment of the Long-Term Effects of Reducing Intake of Energy (CALEIRE) found that cutting food intake to about 890 kilocalories a day – essentially eating like a bird – can improve the metabolic profile of overweight men and women.

This in turn lowered blood insulin levels and core body temperature – two biomarkers associated with longevity. These changes slow aging and increase the likelihood of long lives, the Louisiana State University scientists reported in the *Journal of the American Medical Association*.

In another study of more than 2,250 individuals from the Washington Heights-Inwood Columbia Aging Project, people who strictly adhered to diets high in fruits, vegetables and cereals, but low in meats and dairy products, had about a 40% decrease in risk of Alzheimer's disease.

Researchers from Columbia University also discovered that even those who only sometimes followed a Mediterranean diet could reduce their risk by 15 – 21%. (*Published in the Annals of Neurology*.)

(Source: *CNN Health*)

ORAL THYROXINE IN THE CONTEXT OF REDUCED GASTRIC ACID

Centanni *et al* studied the dose of Thyroxine required to obtain low levels of TSH (thyrotropin) in patients with multinodular goiter. In the case-control subgroup, they found that patients required between 22% to 34% more Thyroxine per day, if there was co-existing *H. pylori*-related gastritis and/or atrophic gastritis. A prospective analysis was also performed to study the effect of omeprazole; this showed an increase in serum TSH, an effect which could be reversed by increasing Thyroxine dosing. The overall impression is that effective absorption of oral Thyroxine requires normal gastric acid secretion. This has implications for dosing of Thyroxine in patients with co-existent *H. pylori*-related gastritis, atrophic gastritis, or who happen to be taking drugs which suppress gastric acidity.

(Source: *NEJM* (2006) 354:1787-1975)

CPF REVAMP

Proposed changes to the Central Provident Fund (CPF) Act – effective from 1 July 2006 – include allowing the terminally ill to withdraw funds

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before they hit 55 years old, as well as tapping patients' Medisave accounts to pay their last medical bill, even if they did not authorise it prior to death.

A new scheme also approves the use of Medisave for outpatient treatment of four chronic medical conditions, that is, diabetes, hypertension, hyperlipidemia and stroke. Patients still pay the first \$30 of each bill plus 15% of the balance, but the rest can be withdrawn from Medisave, up to a total annual limit of \$300. In addition, Singaporeans can withdraw from their family members' accounts – also to a maximum of \$300 for each account.

(Source: The Straits Times)

RESEARCH BOOSTS FOR SINGAPORE

New state-of-the-art laboratories at the Singapore Stem Cell and Singapore Bioimaging Consortia (SSCC and SBIC) were recently declared open at the Biopolis. While the SSCC unites various stem cell research groups to aid development of a national research programme, the SBIC specialises in the areas of molecular imaging and metabolic medicine.

Two leading American medical scientists have also been recruited by the Agency for Science, Technology and Research (A*Star). Husband-and-wife team Professors Edward

Holmes and Judith Swain, who hail from the University of California San Diego, are both experts in translational medicine – an emerging field focused on finding the most efficient and quickest way to bring unproven research findings to the testing phase. It also speeds up lab-based studies by collecting clinical data from patients in a systematic manner to obtain clues on disease origins.

Biotech company CellResearch Corporation, which made headlines last year with its discovery that stem cells can be harvested from the umbilical cord (thus sidestepping the controversial use of embryos), has now succeeded in using stem cells to grow fresh skin for victims of serious burns and other wounds.

Dr Ivor Lim, the company's chief medical director and a plastic / hand surgeon, says the healing rate has been as fast as with a conventional skin graft, but without the complication of rejection by the recipient.

Cells are first grown on synthetic scaffolds before transferring them onto patients' wounds. The procedure has so far allowed three patients to do away with painful skin grafts.

CellResearch is now working with the National University of Singapore to study how stem cells can be used to treat diabetes. ■

(Source: The Straits Times)