Study gives reassurance on safety of xenotransplantation

Janice Hopkins Tanne *New York*

A large international study gives reassurance on the safety of xenotransplantation, the use of donor organs from non-human species, to alleviate the shortage of human organs (*Science* 1999;285:1236-41). Patients exposed to living pig tissue do not seem to have been infected with a pig virus.

Dr Khazal Paradis, director of clinical research at Imutran in Cambridge in the United Kingdom and lead author of the study, told the *BMJ*: "We hope to proceed to small, well monitored studies as immunosuppression improves and look for regulatory approval [for transplant of transgenic pig organs] in a few years."

Pigs are a desirable choice for transplants to humans because their organs are similar to ours, close in size, and easily available. Pigs are less likely to harbour viruses easily spread to humans than more closely related mammals, such as baboons.

The study looked at 160

patients who had been exposed to living pig tissue through extracorporeal perfusion through spleens from healthy slaughterhouse pigs; extracorporeal perfusion for liver failure either through a dialysis-like assist device or through a whole pig liver; pig skin grafts for burns; implants of pig pancreatic islet cells for diabetes; or extracorporeal pig kidney perfusion. Patients who receive pig heart valves are not at risk of virus transmission—processing destroys the virus.

The patients did not seem to have been infected with porcine endogenous retrovirus, including 36 who were immunosuppressed and thus at increased risk of infection. However, of the 30 patients who had been treated with extracorporeal splenic perfusion, 23 showed clear evidence of circulating pig DNA in blood samples, probably because pig cells persisted in their bodies—a condition called microchimerism—up to eight years later.

Xenotransplants: could they fill the gap?

Four patients showed antibody response to the pig virus. Two patients were positive before treatment. Of the two patients for whom samples before treatment were not available but who were positive afterwards, five household contacts showed no antibody response in blood and saliva samples, Dr Paradis said.

Virologist Dr Jonathan Allan, known for his caution about trans-species viral transmission, told the *BMJ*, "It's important there was no raging disease," but he said that better antibody based assays were needed to look for viruses, which might be hidden in the liver, kidney, or lymph nodes. □

Hypothyroidism in pregnancy affects babies' intelligence

Scott Gottlieb *New York*

Pregnant women with untreated hypothyroidism give birth to children with slightly lower IQs, according to a new study, but experts disagree on whether the difference is enough to justify routine screening for pregnant women.

The study, conducted by a team from the Foundation for Blood Research in Scarborough, Maine, examined whether undetected or inadequately treated maternal thyroid deficiency during pregnancy was associated with lower IQ scores in the off-

spring in the absence of neonatal hypothyroidism.

The researchers measured thyrotrophin concentrations in serum samples collected from 25 216 pregnant women between 1987 and 1990. Researchers then performed 15 tests of intelligence, language, attention, school performance, reading ability, and visual-motor performance in the children aged 7 to 9 years born to women with normal and high thyrotrophin concentrations. None of the children studied had congenital hypothy-

roidism (*New England Journal of Medicine* 1999;341:549-55).

Children born to the 62 women with thyrotrophin concentrations at or above the 98th percentile for all women in the study scored lower on all 15 tests, according to the study. IQ scores on the Wechsler intelligence scale for children (third revision) averaged four points lower for these children than for children born to 124 matched control women. Fifteen per cent of children of mothers with hypothyroidism had IQ scores of 85 or less, compared with 5% of children of normal mothers. For children born to the 48 women whose hypothyroidism was not treated during pregnancy, problems were more severe. Their IQ scores averaged seven points

lower than those of controls, and 19% had scores lower than 85.

The researchers found that just 15 of the 62 women with high serum thyrotrophin concentrations had been diagnosed before pregnancy, and 14 of these women were treated for the condition during pregnancy. High serum concentrations of antithyroid peroxidase antibodies were found in 77% of the women with hypothyroidism, indicating chronic autoimmune thyroiditis.

In an accompanying editorial in the *New England Journal of Medicine* (pp 601-2), Dr Robert Utiger, a deputy editor of the journal, suggests that the money for screening might better be spent on population-wide efforts to improve thyroid function by reducing iodine deficiency. □