Health

Pig-to-human transplant

Early treatment could tame peanut allergies

NEW YORK, Jan 22, (AP): Young children might be able to overcome their peanut allergies if treated at an early enough age, according to a study published Thursday.

The researchers gave increasing amounts of peanut protein powder to a group of toddlers to build up their tolerance for peanuts. After 2-1/2 years, close to three-quarters could tolerate the equivalent of 16 peanuts without an allergic reaction. Six months after treatment stopped, one-fifth still had the same tolerance.

The approach seemed to work best in the youngest children and those with milder allergies, the researchers reported Thursday in the journal Lancet.

The findings suggest there's "a window of opportunity" early in life when treatment could have a lasting impact, said **Dr. Stacie Jones**, a study co-author from the University of Arkansas for Medical Services. But she said more research is needed to determine how long the effect might continue.

Jones

A treatment for peanut allergies already exists but it is only approved for ages 4 and older, and the protection it provides is for the accidental exposure to small amounts of peanuts. Children are still supposed to avoid eating the nuts, and carry an EpiPen or other medicine for allergic reactions. It also uses peanut powder, but when children stop taking the treatment, the protection stops.

Jones and her colleagues tested a similar approach on younger children to see if their immune systems could be changed if treated at an earlier age. She helped lead a study for the current treatment, Aimmune Therapeutics' Palforzia, and has consulted for the company.

About 2% of children in the US have peanut allergies, which can cause severe reactions and be a source of constant worry for parents. Some children outgrow the allergy, but most have to continue avoiding peanuts for life. To prevent the allergies from developing, health experts in recent years have encouraged parents to feed babies with peanut-containing foods early on.

The new government-funded study involved 146 children in the U.S. ages 1 to 3. They were given daily doses of peanut powder mixed in food or a dummy powder — oat flour. When the treatment ended, 71% of those who got the peanut powder could tolerate the equivalent of 16 peanuts. Six months later, 21% still could. In the dummy powder comparison group, 2% could tolerate 16 peanuts at the end of the treatment and six months later.

Most of the children had a reaction during treatment, mostly mild to moderate. Some in the peanut group required treatment with an EpiPen.

The research "really supports something that we thought for a while in the field," said Dr. Joyce Hsu, an allergy specialist at Brigham and Women's Hospital in Boston who was not involved in the study. "Children's immune systems are generally more malleable when they are younger."

Hsu's clinic offers an allergy treatment with peanut protein for children ages 4 months and older. As with Palforzia, Hsu noted it is intended to protect against accidental ingestion, and that children are still supposed to avoid peanuts. She said there has been a lack of strong data about treating peanut allergies in infants and very young children.

In a commentary published with the study, other allergy experts noted the wide availability of the peanut powder used in the study. They said the treatment is a reasonable option that's ready for real-world implementation, under the guidance of an allergy specialist.

Dr. John Kelso, an allergy specialist at Scripps Clinic in San Diego, said the findings should give doctors more confidence to try the treatment for toddlers, and offer it to parents. But he noted that it's still not clear whether any tolerance would have a limit or how it might change over time.

"There still needs to be some caution about thinking of this as a cure," he said.

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Transplant: US researchers on Thursday reported the latest in a surprising string of experiments in the quest to save human lives with organs from genetically modified pigs.

This time around, surgeons in Alabama transplanted a pig's kidneys into a brain-dead man — a step-by-step rehearsal for an operation they hope to try in living patients possibly later this year.

"The organ shortage is in fact an unmitigated crisis and we've never had a real solution to it," said **Dr Jayme Locke** of the University of Alabama at Birmingham, who led the newest study and aims to begin a clinical trial of pig kidney transplants.

Similar experiments have made headlines in recent months as research into animal-to-human transplants heats up.

Twice this fall, surgeons at New York University temporarily attached a pig's kidney to blood vessels outside the body of a deceased recipient to watch them work. And earlier this month, surgeons at the University of Maryland Medical Center gave a dying man a heart from a gene-edited pig that so far is keeping him alive.

But scientists still needed to learn more about how to test such transplants without risking a patient's life. With the help of a family who donated a loved one's body for science, Locke mimicked the way human organ transplants are done — from removing the pig "donor" kidneys to sewing them inside the deceased man's abdomen.

For a little over three days, until the man's body was removed from life support, the pair of pig kidneys survived with no sign of immediate rejection, her team reported Thursday in the American Journal of Transplantation.

That was only one of several key findings. Locke said it wasn't clear if delicate pig kidney blood vessels could withstand the pounding force of human blood pressure — but they did. One kidney was damaged during removal from the pig and didn't work properly but the other rapidly started producing urine as a kidney should. No pig viruses were transmitted to the recipient, and no pig cells were found in his bloodstream.

But Locke said the kidney experiment could have more far-reaching impact — because it shows that a brain-dead body can be a much-needed human model to test potential new medical treatments.

The research was conducted in September after **Jim Parsons**, a 57-year-old Alabama man, was declared brain-dead from a dirt bike racing accident.

After hearing this kind of research "had the potential to save hundreds of thousands of lives, we knew without a doubt that that was something that Jim would have definitely put his seal of approval on," said **Julie O'Hara**, Parsons' ex-wife.

The need for another source of organs is huge: While more than 41,000 transplants were performed in the U.S. last year, a record, more than 100,000 people remain on the national waiting list. Thousands die every year before getting an organ and thousands more never even get added to the list, considered too much of a long shot.

Animal-to-human transplants, what's called xenotransplantation, have been attempted without success for decades. People's immune systems almost instantly attack the foreign tissue. But scientists now have new techniques to edit pig genes so their organs are more human-like — and some are anxious to try again.

A 62-year-old nursing home resident receives a COVID-19 booster shot in New York on Monday, Sept. 27, 2021. A study released on Wednesday, Jan. 19, that compares coronavirus protection from prior infection and vaccination in New York and California concludes getting the shots is still the safest way to prevent COVID-19. (AP)

An employee of a test center shows a rapid test on the coronavirus in Wilsdruff, Germany, Friday, Jan. 21. (AP)

Hédouin

Eakin

Discovery

Rare coral reef found: Deep in the South Pacific, scientists have explored a rare stretch of pristine corals shaped like roses off the coast of Tahiti. The reef is thought to be one of the largest found at such depths and seems untouched by climate change or human activities.

Laetitia Hédouin said she first saw the corals during a recreational dive with a local diving club months earlier.

"When I went there for the first time, I thought, 'Wow - we need to study that reef. There's something special about that reef," said Hédouin, a researcher at the French National Center for Scientific Research in Moorea, French Polynesia.

What struck Hédouin was that the corals looked healthy and weren't affected by a bleaching event in 2019. Corals are tiny animals that grow and form reefs in oceans around the world.

Globally, coral reefs have been depleted from overfishing and pollution. Climate change is also harming delicate corals - including those in areas neighboring the newly discovered reef - with severe bleaching caused by warmer waters. Between 2009 and 2018, 14% of the world's corals were killed, according to a 2020 report by the Global Coral Reef Monitoring Project.

The newfound reef, stretching 2 miles (3 kilometers), was studied late last year during a dive expedition supported by UNESCO. Unlike most of the world's mapped corals, which are found in relatively shallow waters, this one was deeper - between 115 feet (35 meters) to 230 feet (70 meters).

Exploring such depths posed a challenge: the deeper a diver goes underwater, the shorter amount of time can be safely spent at each depth. The team was equipped with special tanks and did 200 hours of diving to study the reef, including taking photographs, measurements and samples of the coral.

The reef is in a spot where many researchers haven't spent a lot of time in, said former National Oceanic and Atmospheric Administration oceanographer **Mark Eakin**. (AP)

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Bid for smallest orange crop: Florida is on pace to produce the smallest crop of oranges in more than 75 years, according to a forecast released this month.

The Sunshine State is on pace to produce 44.5 million 90-pound boxes of oranges during the current season, according to a forecast released last week by the US Department of Agriculture. That is a 1.5 million box reduction from the previous forecast in December.

If the current forecast holds true through the rest of the citrus growing season, it will be the smallest orange crop since the 1944-1945 season when the state produced 42.3 million boxes of oranges. The citrus growing season in Florida lasts from fall into late spring.

With that small a crop, California will surpass Florida in orange production for the first time in recent years.

"The disappointment of another decline in the forecast is hard to overstate. But so too is the determination of Florida's citrus growers who remain focused on delivering great-tasting and high-quality fruit while - simultaneously - seeking new solutions to citrus greening," said Shelley Rossetter, assistant director of global marketing at the Florida Department of Citrus, in a statement. (AP)

This photo provided by @alexis.rosenfeld shows corals shaped like roses in the waters off the coast of Tahiti of the French Polynesia in December 2021. Deep in the South Pacific, scientists have explored a rare stretch of pristine corals shaped like roses off the coast of Tahiti. (AP)

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Orangutan being bottle-fed: The endangered Sumatran orangutan infant at New Orleans' zoo is being bottle-fed because his mother wasn't producing enough milk.

The still unnamed baby was being tube-fed as well, but the tube was removed Jan 13, Audubon Zoo spokeswoman Annie Kinler Matherne said.

The great apes with long red hair are considered critically endangered by the International Union for Conservation of Nature. Threats to the Sumatran species include hunting and the destruction of the forests and peat swamps where they spend nearly all their time in trees.

Twelve-year-old Menari gave birth to the baby on Christmas Eve; a twin brother was stillborn. Days later, the baby was showing signs of weakness and lack of nursing.

Veterinarians examined Menari, a first-time mother, and discovered the lactation problem.

Since then the infant has had round-the-clock care from zoo staffers wearing furry vests that the baby can cling to. (AP)

Coronavirus

'It's still much safer to get immunity from vaccination'

Prior infection, shots offer best protection

NEW YORK, Jan 22, (AP): A new study in two states that compares coronavirus protection from prior infection and vaccination concludes getting the shots is still the safest way to prevent COVID-19.

The study examined infections in New York and California last summer and fall and found people who were both vaccinated and had survived a prior bout of COVID-19 had the most protection.

But unvaccinated people with a past infection were a close second. By fall, when the more contagious delta variant had taken over but boosters weren't yet widespread, that group had a lower case rate than vaccinated people who had no past infection.

The Centers for Disease Control and Prevention, which released the study Wednesday, noted several caveats to the research. And some outside experts were cautious of the findings and wary of how they might be interpreted.

"The bottom line message is that from symptomatic COVID infection you do generate some immunity," said immunologist E. John Wherry of the University of Pennsylvania. "But it's still much safer to get your immunity from vaccination than from infection."

Vaccination

Vaccination has long been urged even after a prior case of COVID-19 because both kinds of protection eventually wane - and there are too many unknowns to rely only on a past infection, especially a long-ago one, added immunologist Ali Ellebedy at Washington University in St. Louis.

"There are so many variables you cannot control that you just cannot use it as a way to say, 'Oh, I'm infected then I am protected,'" Ellebedy said.

The research does fall in line with a small cluster of studies that found unvaccinated people with a previous infection had lower risks of COVID-19 diagnosis or illness than vaccinated people who were never before infected.

The new study's findings do make sense, said Christine Petersen, a University of Iowa epidemiologist. She said a vaccine developed against an earlier form of the coronavirus is likely to become less and less effective against newer, mutated versions.

However, experts said, there are a number of possible other factors at play, including whether the vaccine's effectiveness simply faded over time in many people and to what extent mask wearing and other behaviors played a part in what happened.

Another thing to consider: The "staunchly unvaccinated" aren't likely to get tested and the study only included lab-confirmed cases, Wherry said.

"It may be that we're not picking up as many reinfections in the unvaccinated group," he said.

CDC officials noted other limitations. The study was done before the omicron variant took over and before many Americans received booster doses, which have been shown to dramatically amplify protection by raising levels of virus-fighting antibodies. The analysis also did not include information on the severity of past infections, or address the risk of severe illness or death from COVID-19.

The study authors concluded vaccination "remains the safest strategy" to prevent infections and "all eligible persons should be up to date with COVID-19 vaccination."

The researchers looked at infections in California and New York, which together account for about 18% of the US population. They also looked at COVID-19 hospitalizations in California.

Overall, about 70% of the adults in each state were vaccinated; another 5% were vaccinated and had a previous infection. A little under 20% weren't vaccinated; and roughly 5% were unvaccinated but had a past infection.

The researchers looked at COVID-19 cases from the end of last May until mid-November, and calculated how often new infections happened in each group. As time went on, vaccine-only protection looked less and less impressive.

By early October, compared with unvaccinated people who didn't have a prior infection, case rates were:

- 6-fold lower in California and 4.5-fold lower in New York in those who were vaccinated but not previously infected.
- 29-fold lower in California and 15-fold lower in New York in those who had been infected but never vaccinated.
- 32.5-fold lower in California and 20-fold lower in New York in those who had been infected and vaccinated.

But the difference in the rates between those last two groups was not statistically significant, the researchers found.

Hospitalization data, only from California, followed a similar pattern.

Why is it better to wear an N95 than a 'cloth mask' right now?

NEW YORK, Jan 22, (AP): Why is it better to wear an N95 than a cloth mask right now?

Health experts suggest stepping up protection against the highly contagious omicron variant with stronger masks such as N95s or KN95s.

It's especially important now with health care systems under strain, and with people in higher-risk situations such as crowded, indoor settings for extended periods, says Linsey Marr, who studies viruses at Virginia Tech.

The US Centers for Disease Control and Prevention recently updated its guidance to recommend the kinds of masks used by health care workers, but also noted it's important to pick a mask that fits well and that you'll wear consistently.

"Our main message continues to be that any mask is better than no mask," CDC spokeswoman Kristen Nordlund said in a statement.

Previously, the CDC had said N95 masks should be reserved for health care workers because of supply shortages. There's a special category of "surgical N95" masks that are generally not available for sale to the public that the CDC says should continued to be reserved for health care settings.

N95s have a tighter fit to your face than cloth masks and are made with a special material designed to block 95% of harmful particles. The fibers are pressed closer together than in cloth masks and have an electrostatic charge that attracts molecules to stick to the mask rather than passing through.

KN95s and KF94s offer a similar level of protection. A full list of masks that meet an international quality standard is available on the CDC website.

But be careful when buying. The counterfeit market is huge, and about 60% of KN95s in the US are fake and do not meet quality standards, according to the CDC.

It's hard to tell just by looking if a mask is counterfeit, so experts suggest buying directly from reputable sellers. Project N95 is also a known seller of valid brands, and Marr says she buys masks through industrial suppliers like Grainger or McMaster-Carr.