Trends & Technology

Trends

NIH investigates COVID-19 vaccine allergic reactions with clinical trial

The NIH has begun a clinical trial assessing whether patients who are highly allergic or have a mast cell disorder are at greater risk for an immediate, systemic allergic reaction to the COVID-19 vaccines made by Moderna or Pfizer-BioNTech. A systemic allergic reaction occurs in at least one part of the body beyond the injection site.

Study findings will help health care providers advise this at-risk patient population on the potential risks versus benefits of receiving either of these two vaccines. Scientists are also exploring the biological mechanism causing these allergic reactions. They hope to learn if a genetic pattern or another factor can indicate the highest-risk patients. Study results are anticipated by late summer 2021.

Severe allergic reactions to the Moderna and Pfizer-BioNTech COVID-19 vaccines, which have already been administered to millions of Americans, have typically occurred in patients with a history of allergies.

The clinical trial, which will enroll some 3,400 adults ages 18 to 69, will collect blood, urine, and nasal swabs from participants. About two-thirds of study participants will be female, since severe allergic reactions to all vaccines in general typically occur in women. All study participants will remain under observation for at least 90 minutes after each injection. Trained allergists will be on site and prepared to treat anaphylaxis, if needed. The placebo group will eventually be given one of the two vaccines after the placebo data have been collected.

Source: **https://asamonitor.pub/3dunI4k**

Fewer surgeries during pandemic force dramatic cuts in poppy production

Raw materials from poppies are used in the production of opioid painkillers, but a ripple effect from the coronavirus pandemic has caused massive reductions in poppy production for the pharmaceutical industry.

When the pandemic forced the cancellation of most elective surgeries in 2020, the global demand for surgical pain relievers plunged dramatically. For example, this phenomenon has influenced India's Sun Pharma to greatly reduce its number of contracted poppy growers based in Tasmania. The Sun Pharma manufacturing plant in Latrobe, Tasmania, has eliminated 20 poppy growers and reduced the contracts of 150 other growers.

Sun has also had to make production cuts in its U.S. and European facilities. In India, Sun is shifting production away from painkillers and focusing instead on helping produce Gilead's remdesivir, which is used to treat COVID-19.

Pharmaceutical poppy production, which was once a booming business, may have been forever altered by the effects of the coronavirus pandemic. Even before the pandemic, poppy growers were already witnessing falling prices for the crop as synthetic opiate options, such as fentanyl, came on the market.

Source: **https://asamonitor.pub/2RHjJZL**

NIH funds increased COVID-19 testing in vulnerable school districts to restart in-person learning

The NIH will use funding from the recent federal COVID aid package, the American Rescue Plan, to help resume in-person learning through increased COVID-19 screening measures in select school districts with underserved populations. Over the next two years, $33 million will be awarded to 10 institutions across the country. The funding will cover the expenses of frequent COVID-19 testing and other safety measures.

The selected public and charter schools range from early childhood learning though kindergarten up to 12th grade. The affected districts are found in urban, rural, and tribal communities, and have racially and ethnically diverse student populations with at least half of their student populations receiving free or reduced-price lunches.

Although in-person, virtual, and hybrid learning options are available at many schools, students from low-income households may not have the computer equipment or high-speed internet needed to study effectively from home.

Source: **https://asamonitor.pub/3x7nbx6**

University of Pennsylvania study shows dogs can accurately detect COVID-19

A new study from the University of Pennsylvania's School of Veterinary Medicine finds that a dog's sense of smell can detect positive samples of the coronavirus with 96% accuracy. The study was completed on eight Labrador retrievers and one Belgian Malinois, all of whom had not previously participated in medical detection work.

After learning the basics of general scent detection, the study dogs were taught to distinguish between urine samples from COVID-19-positive and -negative patients. Interestingly, the dogs showed some confusion with a sample from a patient who tested negative for COVID-19 but who had previously been infected.

The highly competitive COVID-19 testing landscape is now beginning to narrow, with predicted drops in demand. Experts believe that future testing demand levels may be comparable to seasonal influenza testing needs.

Scientists at the University of Pennsylvania are now planning to expand their research to investigate whether dogs can distinguish between the odors left on clothing by people testing positive or negative for COVID-19 or those who have been vaccinated.

Source: **https://asamonitor.pub/3x90fgV**

Technology

FDA still reviewing I.V. tramadol new drug application

As of April 2021, Avenue Therapeutics' new drug application (NDA) for I.V. tramadol was still under review by the FDA. The specialty pharmaceutical company is seeking FDA approval of its I.V. tramadol as an opioid alternative for patients with acute pain.

The pending review is of an NDA resubmission from October 2020 with revised product label language and a new report about terminal sterilization validation.

Oral tramadol is currently approved and available in the U.S. Parenteral tramadol is approved and used in many countries across the globe, but no parenteral tramadol product is available in the U.S.

Medtronic pursues new artificial intelligence tools for robotic surgeries and other procedures

Robotic procedures currently make up only 3% of surgeries across the globe, but industry experts predict an expansion of robotic surgeries as companies develop their artificial intelligence (AI) capabilities. Medtronic is one such medical technology that is developing surgical AI tools.

Medtronic's new robotic-assisted surgery system called Hugo uses the company's Valleylab FT10 energy platform to sense tissue at a speed of 434,000 times each second. During blood vessel sealing and related procedures, this technology allows for the automatic delivery of a consistent tissue effect.

The company's PillCam technology also uses AI to take pictures of a patient's gastrointestinal tract from within a capsule the size of a vitamin. The patient's photos are automatically compared to a database of images of normal tissue and lesions, which reduces the number of photos a physician needs to review.

Industry leaders believe that the increased dependence on telemedicine created by the COVID-19 pandemic has make the public much more comfortable with the concept of remote surgery and procedures.

Facebook and German research center unveil open-source computer model testing potential drug cocktails

Facebook's AI research department has partnered with the German research center Helmholtz Zentrum München to launch an open-source AI program built to assess the viability of new pharmaceutical cocktails comprising existing drugs.

The Compositional Perturbation Autoencoder (CPA) is freely available to researchers and biologists. The computer model can predict drug interactions and assess potential billions of different dosage combinations, and how such new drug cocktails can tack on different diseases.

The CPA can run projections on dozens of drug combinations and dosages in only a few hours, a task that would take several years of research without the machine-learning capabilities. ■

Downloaded from http://pubs.asahq.org/monitor/article-pdf/857/13/510135/20210700.0-00008.pdf by guest on 31 July 2021