Reference of the Week


Premise/Methods: 1. When specific mutations, or sets of mutations, are selected through numerous rounds of viral replication, a new variant can emerge. 2. Specific mutations that confer a competitive advantage in terms of transmission, virulence, and/or resistance to immunity (natural or vaccine induced) new viral variants assume the descriptor, variant of concern (VOC). 3. Viral genomic surveillance and tracking in this study began at one hospital in California and then utilized publicly available data of genomic sequencing.

Findings: 1. The VOC is CAL.20C/S:452R and has 3 amino acid changes in the spike protein. 2. In November 2020, 30 cases were also identified in Northern California and individual cases in 5 additional states. As of January 22, 2021, CAL.20C has been detected in 26 states and other countries. 3. This variant now accounts for 44% of all samples collected in Southern California in January and presumably is rising to predominance due to a selective advantage. 4. The functional effect of this variant is currently unknown and clinical outcome surveillance is underway.

The emergence of variants in South Africa and Brazil that reduce vaccine efficacy and are not neutralized by specific monoclonal antibodies raises the concern that new variants will be even more robust in evading immunity.

Other References:


Reflections: 1. Historically, systemic racism and injustices play a large role in the health and well-being of Blacks living in the USA and COVID-19 like Katrina has exposed how social determinants impact on health outcomes. 2. The National Black Nurses Association (NBNA) was founded in 1971 and provides a voice for Black nurses that promotes community service, health policy and advocacy, workforce expansion, and professional development. 3. NBNA uses a community partnership approach to engage the Black population in addressing healthcare needs and outcomes and has relationships with other non-profits, corporations, government organizations, to address social disparities of health including housing, food insecurity, transportation, education, social support, employment, income, social status, and racism and discrimination. 4. “After Hurricane Katrina, the health disparity conversation ended almost as fast as the water receded from the Ninth Ward in New Orleans.” Will the conversation continue after COVID-19 or will we lapse back into a healthcare system where outcomes of Black and Brown individuals is driven by zip codes and an acute disease focus that wastes 1 trillion dollars per year while largely ignoring preventable conditions? 5. The NBNA advocates for a community based model of wellness promotion, coordination with like-minded advocates, and increasing Black healthcare professionals starting with relationships early in the educational life of young people.

Are we up to the challenge?


Interim Clinical Considerations for Use of mRNA COVID-19 Vaccines | CDC

IF – an individual is fully vaccinated (i.e., ≥2 weeks following receipt of the second dose in a 2-dose series, or ≥2 weeks following receipt of one dose of a single-dose vaccine).

- the individual is within 3 months following receipt of the last dose in the series.
- and the individual has remained asymptomatic since the current COVID-19 exposure.

THEN – the individual is not required to quarantine following exposure to a COVID-19 individual.

Note: 1. Individual and societal benefits of avoiding unnecessary quarantine may outweigh the potential but unknown risk of transmission following vaccination. 2. Vaccinated individuals should watch for symptoms of COVID-19 for 14 days following exposure. 3. These criteria could also be applied when considering work restrictions for fully vaccinated healthcare personnel with higher-risk exposures as a strategy to alleviate staffing shortages.

**Premise/Methods:**

1. Patients treated for severe COVID-19 show a rapid and profound decline in hemoglobin following admission and is associated with circulating nucleated RBCs 2-3 weeks after admission while platelets and WBCs increase.  
2. Progenitors of the erythroid lineage are the only cell types expressing both ACE2 and TMPRSS2 (transmembrane protease serine 2) among the cells present in the bone marrow.  
3. Erythroid progenitor cells were assessed over time to ascertain when ACE2 and TMPRSS2 expression takes place.  
4. SARS-CoV-2 infection was then assessed at different times during erythropoiesis.

**Results:**

1. Three sets of erythroid progenitor cells were isolated during erythropoiesis with stage 2 and to a lesser extent stage 3 displaying active ACE2 and TMPRSS2 genes.  
2. SARS-CoV-2 infection was performed on the cells from the three stages: no infection occurred to Stage 1 cells; the highest infection occurred with Stage 2 cells; and a declining infection count occurred during stage 3 consistent with ACE2 and TMPRSS2 gene expression.  
3. SARS-CoV-2 infected Stage 2 cells can remain viable for 14 days harboring the virus.  
4. This study is the first to demonstrate aberrant erythropoiesis in COVID-19 patients and likely accounts for the profound anemia experienced by infected patients but also might account for persistence and spread of the infection during the illness.

---

**National Institute of Occupational Health and Safety (NIOSH). Counterfeit Respirators / Misrepresentation of NIOSH-Approval.**

Counterfeit respirators are products that are falsely marketed and sold as being NIOSH-approved and may not be capable of providing appropriate respiratory protection to workers. Before bulk purchasing masks for a family, church, or organization go to the cited CDC web site to make certain the purchase will provide the protection expected.

---

**SEE THE ARTICLE CABINET ON THE S: DRIVE, “COVID-19 ARTICLE RESOURCE CABINET” FOR CHILDREN’S FULL COLLECTION**