Greetings, I am Dr Karl Nath, the Editor-in-Chief of Mayo Clinic Proceedings, and I am pleased to welcome you to the multimedia summary for the journal’s February 2022 issue. There are three articles that have been selected as our Editor’s Choice or Highlights articles this month.

The Editor’s Choice this month is a Brief Report entitled “Effectiveness of Monoclonal Antibodies in Preventing Severe COVID-19 With Emergence of the Delta Variant.” It is authored by Dr John O’Horo and colleagues from Mayo Clinic in Rochester, Minnesota. In patients at a high risk for progressive disease, anti-spike monoclonal antibodies interrupt the progression of COVID-19 from its mild to moderate stage to severe disease, the latter usually attended by increased need for hospitalization and increased morbidity and mortality. In a prior issue of Mayo Clinic Proceedings this year, Razonable et al discussed the framework - and its modus operandi - that exists at Mayo Clinic for the administration of anti-spike monoclonal antibodies to patients with mild to moderate COVID-19 (Mayo Clin Proc. 2021; 96(5):1250-1261).

In the present issue of Mayo Clinic Proceedings, and drawing upon data obtained from this program at Mayo Clinic sites in 4 states, O’Horo et al assessed the efficacy of anti-spike monoclonal antibodies against SARS-CoV-2 during time periods in which specific SARS-CoV-2 variants were predominant. In late 2020, the SARS-CoV-2 alpha variant appeared, became dominant in early 2021, and was accompanied by the beta variant, which was detected in a smaller number of COVID-19 cases. In the summer of 2021, the delta variant emerged, quickly achieved dominance among viral variants, and seemed to evince a greater proclivity to elude neutralizing antibodies and to inflict more severe disease.

In this study by O’Horo et al, patients with infection before April 30, 2021, at any of the Mayo Clinic sites, were considered as having the alpha/beta variants, whereas patients who were infected after July 1, 2021, were regarded as having the delta variant. Eligibility for anti-spike monoclonal antibody therapy required that patients were within 10 days of the onset of symptoms of COVID-19; that COVID-19 was mild to moderate; and that patients fulfilled the criteria for the Food and Drug Administration (FDA) emergency use authorization (EUA) which predicted a high risk for severe COVID-19 based on patient characteristics and medical conditions. The Charlson Comorbidity Index (CCI), which encompasses 19 comorbid conditions, was determined for each patient.
The data demonstrate that the odds of severe infection were 3.0% and 4.9% in the alpha/beta-predominant and delta-predominant time periods, respectively; and that the delta-predominant time period exhibited higher odds for more severe disease, especially so when such odds were adjusted for the Charlson Comorbidity Index. These findings are especially notable in that on May 14, 2021, the FDA Expanded Use Authorization criteria expanded such that during the delta-predominant era, infusions were administered to patients with less comorbidities. An added consideration is that during the alpha/beta-predominant era, the anti-spike monoclonal antibody administered was bamlanivimab, whereas in the delta-predominant period, patients were treated with the casirivimab-imdevimab combination.

Based on the present data, and prior findings by this group that rates of hospitalizations were not different between these two regimens (J of Infect Disease, 2021), O’Horo et al conclude that the delta variant may be more virulent than the alpha/beta variants. However, the authors leave open the much less likely possibility that the casirivimab-imdevimab combination may be less effective than bamlanivimab.

This study by O’Horo et al is important and timely because it evaluates therapeutic strategies for COVID-19 within the context of evolving therapies and emerging viral variants, the latter consideration especially germane given the current threat imposed by the now present omicron viral variant and the specter of a resurging pandemic.

The first Highlight article this month is an Original Article describing abdominal obesity and cardiometabolic health outcomes entitled “Cardiometabolic Health Outcomes Associated With Discordant Visceral and Liver Fat Phenotypes: Insights From the Dallas Heart Study and UK Biobank.” It is authored by Dr Sanaa Tejani from the University of Texas Southwestern Medical School in Dallas, Texas, and colleagues from national and international institutions.

Obesity is a major cause for morbidity and mortality in the United States where the age-adjusted prevalence of obesity is approaching 50%. Worldwide, the prevalence of obesity has increased several fold in recent decades. Abdominal obesity, in particular visceral adipose tissue (VAT), is of special concern as a
predictor of disease. Tejani et al examined the association between cardiometabolic health outcomes and types of abdominal fat deposition. Their study focused on visceral adipose tissue and fat that is deposited in organs that are generally non-adipose tissue-containing such as the liver. These authors utilized the Dallas Heart Study, the central aim of which is the prevention and management of heart disease.

The Dallas Heart Study incorporated, among other assessments, baseline imaging of participants who were then followed for more than 10 years for incident cardiovascular disease and type 2 diabetes mellitus. Based on assessment of visceral adipose tissue and liver fat, participants were classified as having either high or low visceral adipose tissue, and high or low liver fat. Their findings demonstrate that participants with high visceral adipose tissue, irrespective of whether they had high or low liver fat, were at an increased risk of cardiovascular disease and diabetes, while participants with high liver fat and low visceral adipose tissue were at an increased risk for diabetes.

Tejani et al also examined such associations in another database, namely, the UK Biobank. Using these data, Tejani et al found that significant associations with cardiovascular disease only held true for individuals with high visceral adipose tissue and low liver fat, after adjusting for age and BMI. Tejani et al discuss the implications of their findings, including among others, the following considerations. First, obesity, as defined by anthropometry, does not fully convey the risk for disease as the type of abdominal fat deposition may be associated with an increased risk for specific types of cardiometabolic disease. Second, investigation of therapeutic approaches for weight loss may consider including an assessment of the site and type of adiposity of participants in such studies and how the specific types of fat deposits are altered in response to these strategies. Third, the intriguing and perhaps unexpected finding that low liver fat when present with high visceral adipose tissue robustly associates with cardiovascular disease is germane to strategies that seek to lower liver fat in nonalcoholic fatty liver disease; specifically, the present findings would suggest that lowering liver fat without concomitantly lowering visceral adipose tissue may actually increase the risk for CVD.
This study provides new data demonstrating that the prognostic significance of fat deposition depends upon the site, amount, and nature of the accumulated adipose tissue, and interacting effects of such deposits.

Our second Highlight article this month is an Original Article entitled “Social Determinants of Health Among Non-Elderly Adults With Stroke in the United States.” It is authored by Dr Safi Khan from West Virginia University, in Morgantown, West Virginia, and colleagues from other institutions in the United States.

Mortality from stroke in the elderly is decreasing whereas the prevalence of stroke and its attendant mortality have increased in non-elderly individuals in recent years. Based on data obtained from the National Health Interview Survey, Khan et al examined the association between social determinants of health and the prevalence of stroke in young individuals (that is, 18 to 45 years old) and middle-aged individuals (that is, 45 to 64 years old). Social determinants of health were scored based on a model developed by the Kaiser Family Foundation that involved a cumulative assessment of responses to 39 sub-components that encompassed 5 domains, the latter involving economic stability, access to health care, community and social contexts, neighborhood, food, and education. More than 50% of the study group were in the young age range, in whom 20% of strokes occurred. Individuals with a stroke reported unfavorable responses to the vast majority of the 39 subcomponents of social determinants of health.

Approximately 50% of strokes were reported in individuals with the fourth quartile score for social determinants of health. Notably, there was a progressive increase in prevalence of stroke adjusted for age as the score for social determinants of health score increased from the first to the fourth quartile. Stroke was almost 3 times more likely to occur in individuals with scores in the fourth quartile as compared with those in the first quartile, after adjustments for assorted demographic characteristics and risk factors for cardiovascular disease.

This important study underscores the significance of social determinants of health in the prevalence of stroke in young and middle age individuals and why addressing such determinants is such a vital component of major health care initiatives.
You can access these Highlights and Editors Choice articles free of charge during the entire month of February. Please visit our Mayo Clinic Proceedings website at www.mayoclinicproceedings.org. There, you will find links to our social media by clicking the buttons at the top of the home page and at the bottom of any page to follow us on Facebook, Twitter, and YouTube. On our YouTube channel, you will find full-length author interviews called “Insights,” 60-second video article synopses, and our Mayo Clinic Proceedings Issue Summary and Author Insights podcast recordings, which are available from our website on the home page, as well as through iTunes.

You will also find our online only features and many news stories posted in the “News from the Editor” carousel on our website home page that are based on articles published in Mayo Clinic Proceedings, and finally you will see other free content as well as articles published online in-press. As always, we greatly thank you for your interest in, and support of, Mayo Clinic Proceedings.

We hope you found this presentation from the content of our website valuable. Our journal’s mission is, “To promote the best interests of patients by advancing the knowledge and professionalism of the physician community.” If you are interested in more information about us, our homepage is www.mayoclinicproceedings.org. There you will find access to information for our social media content, such as additional videos on our YouTube Channel: www.YouTube.com/MayoProceedings, or journal updates on Facebook: www.facebook.com/Mayo-Clinic-Proceedings. You can also follow us on Twitter: www.Twitter.com/MayoProceedings. More information about health care at Mayo Clinic is available at: www.MayoClinic.org.