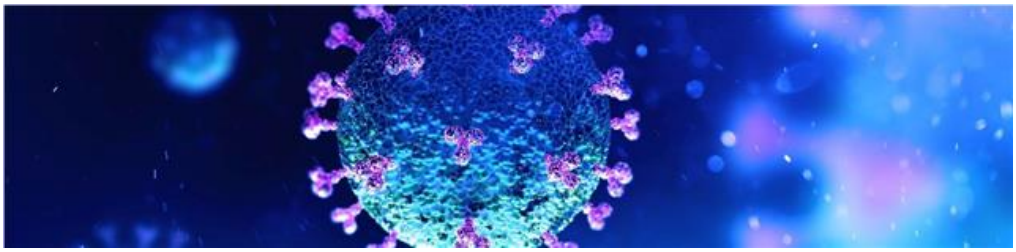


April 9: COVID-19 Clinical Update

Return to Work Patient Letters, COVID-19 and the Heart, Guidance on HBP Medications

This daily communication is intended to facilitate the sharing of important clinical information during the COVID-19 healthcare crisis and to help respond to questions from physicians across Northwestern Medicine.

In today's issue, you will find an update on Return to Work patient letters, as well as information regarding the impact of COVID-19 on cardiovascular disease and guidance on the continuation of high blood pressure medications provided by Chief of Cardiology and Associate Director of Bluhm Cardiovascular Institute Clyde W. Yancy, MD; Cardiologist Robert Bonow, MD; and Nephrologist Daniel Batlle, MD.

RETURN TO WORK PATIENT LETTERS
Three Return to Work patient letters have been added to Epic, which can be viewed **here**. These include:

- NM RETURN TO WORK SYMPTOMATIC
- NM RETURN TO WORK CONFIRMED POSITIVE
- NM RETURN TO WORK POST MONITORING

COVID-19 AND THE HEART
Data continue to emerge addressing the vulnerability of patients with pre-existing heart disease, hypertension and diabetes to COVID-19 infections. There is no evidence to date that the risk of contracting COVID-19 infection is greater, but for those with underlying cardiovascular diseases, there does appear to be increased risk for adverse outcomes with COVID-19. Terminal events of heart failure, shock, heart block and ventricular arrhythmias are now commonly described.

Reports from China (subject to reporting error) demonstrate that 30-40% of those with COVID-19 infection have underlying cardiovascular disease (CVD), hypertension or diabetes. In the older patient with CVD and COVID-19 infection, evidence of myocardial injury as measured by Troponin T or Troponin I is particularly worrisome. In this cohort, the incidence of ARDS and the requirement for mechanical ventilation approximates 50%, and the case fatality rate may be greater than 50%. Even without evidence of cardiac injury, the case fatality rate for those with COVID-19 and CVD is about 10%. Recent data from Italy now corroborates the very high risk associated with COVID 19 infection and concomitant cardiovascular comorbidities.

Recent information also indicates that men may be at greater risk for death due to COVID19. This may be associated with higher ACE2 expression (see below), but it may also reflect social norms in the first countries reporting sex-specific death rates. In our own community, reports are emerging that rates of death are higher in the black community. Whether this increased risk represents the associated cardiovascular co-morbidities known to be prevalent in that community or the influence of adverse social determinants of health will require much further study.

Overall, patients with heart disease are at increased risk in the setting of COVID-19 infection. The triad of advanced age > 60, CVD/HTN/Diabetes and myocardial injury – perhaps especially so in men – should heighten our awareness for potential serious consequences.

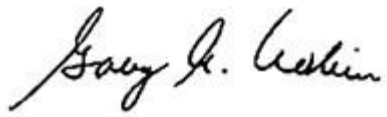
GUIDANCE ON THE CONTINUATION OF HIGH BLOOD PRESSURE MEDICATIONS

Many questions have been raised regarding the concurrent use of ACE inhibitors and ARBs in patients with COVID-19 infection. These concerns center on the role of angiotensin converting enzyme 2 (ACE2) and SARS-CoV-2 (COVID-19) infection, and originated in animal studies where ARBs have been shown to increase ACE2 expression.

ACE2 is expressed in the heart, kidneys and especially the lungs, but in the lungs, ACE2 becomes the portal of injury for SARS –CoV-2. Given that ACE2 is the entry point of COVID-19 to human cells, some people speculate that taking ACE inhibitors and/or ARBs could increase the risk for COVID-19 infection and/or worsen the course.

Does that mean we should hold RAAS inhibitors in the setting of COVID-19 infection? The conclusion so far by all major medical societies is that ACE inhibitors and ARBs should not be discontinued because of concerns of increased risk for contracting COVID-19 infection. Currently, there are no experimental or clinical data demonstrating beneficial or adverse outcomes with background use of ACE inhibitors, ARBs or other RAAS antagonists in COVID-19. Moreover, there may in fact be greater harm if these drugs are stopped abruptly. Active investigation, especially with ARBs, is ongoing.

Thank you to all Northwestern Medicine healthcare providers on the front lines of this crisis. To honor and celebrate your extraordinary work and courage during the COVID-19 crisis, we have launched the ***Heroes for Better*** campaign. If you would like to share the story of an NM hero, or if you have any questions, please submit them to **COVID-19MD@nm.org**.



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