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Medicine Update

THE CARDIOVASCULAR-KIDNEY-METABOLIC (CKM) SYNDROME: A NEW DISORDER INCREASING RISK OF HEART DISEASE

In a scientific statement published October 9, 2023, the American Heart Association (AHA) has coined a new term "cardiovascular-kidney-metabolic (CKM) syndrome" to highlight the interrelationship between various metabolic and kidney-related factors for cardiovascular disease (CVD). It has defined stages with increasing risk with treatment approach for each. Stage 0 (no risk factors), Stage 1 (overweight/obesity, impaired glucose tolerance), Stage 2 (hypertension, metabolic syndrome), Stage 3 (subclinical atherosclerotic cardiovascular disease [ASCVD] or heart failure [HF]) and Stage 4 (clinical CVD)... (Source: *Circulation*. Oct. 9, 2023).

PIONEERS OF GROUNDBREAKING MRNA TECHNOLOGY AWARDED NOBEL PRIZE IN MEDICINE

Katalin Karikó and Drew Weissman have jointly won the 2023 Nobel Prize in Physiology or Medicine for their "discoveries concerning nucleoside base modifications that enabled the development of effective mRNA vaccines against coronavirus disease 2019 (COVID-19)"... (Source: *Nobel Prize.org*. Oct. 2, 2023).

LOWER MICROBIOME DIVERSITY MAY BE A BIOMARKER OF SEVERE COVID-19

Significantly higher prevalence of *Parasutterella*, *Odoribacter*, *Staphylococcus* and *Sellimonas* were found in the stool samples of patients with severe COVID-19 receiving intensive care. These bacteria are implicated in gut dysbiosis. Oral samples of patients who required mechanical ventilation, *Staphylococcus* and *Enterococcus* were the abundant organisms. Patients receiving

supplemental oxygen showed lower community biodiversity in the oral cavity as well as the intestinal tract... (Source: *Chest*. Oct. 10, 2023).

HIGH HDL CHOLESTEROL LEVELS LINKED TO RISK OF DEMENTIA

Not just low high-density lipoprotein (HDL) "good" cholesterol levels, high levels of HDL cholesterol are also associated with increased risk of dementia, says a study in *Neurology* journal. After adjusting for confounding variables, patients with highest HDL levels had 15% higher risk, while the risk increased by 7% among those with lowest levels versus those with intermediate levels... (Source: *Neurology*. Oct. 4, 2023).

PHASE 1 TRIAL OF A NEW HIV VACCINE BEGINS

The phase 1 trial to investigate the efficacy and safety of an investigational preventive human immunodeficiency virus (HIV) vaccine "VIR-1388" has begun at 6 centers in the United States and 4 in South Africa. A total of 95 participants with asymptomatic cytomegalovirus but who are HIV-negative will be enrolled. Three out of four study groups will receive the vaccine in different doses, while the fourth will be given a placebo... (Source: *NIH*. Sept. 20, 2023).

FDA APPROVES THE FIRST IV SECUKINUMAB FORMULATION

Secukinumab is now also available as an intravenous (IV) formulation following FDA (Food and Drug Administration) approval of IV secukinumab for the treatment of adult patients with psoriatic arthritis, ankylosing spondylitis and nonradiographic axial spondyloarthritis (nr-axSpA). It is a monoclonal

antibody, which binds to interleukin-17A. It is also available as a subcutaneous injection... (Source: *Medscape*. Oct. 9, 2023).

THE FOURTH WHO ESSENTIAL DIAGNOSTICS LIST PUBLISHED

The World Health Organization (WHO) has published its latest list of essential diagnostic tests. Tests for hepatitis E virus (HEV nucleic acid test, IgM antibodies to HEV and IgM antibodies to HEV rapid diagnostic test) and the use of glucose monitoring devices for personal use have been included for the first time in the fourth edition of the list. Parathyroid hormone and 17-hydroxyprogesterone tests have been included for endocrine diseases. A point-of-care test to determine blood group and Rhesus factor, high-sensitivity troponin I and T to diagnose acute myocardial infarction, Kleihauer-Betke acid-elution test for fetomaternal hemorrhage are the other new tests included in the list... (Source: *WHO*. Oct. 19, 2023).

ANTIGEN RAPID DIAGNOSTIC TESTS MAY BE NEGATIVE AT THE TIME OF ONSET OF SYMPTOMS IN COVID-19

A study of symptomatic adult patients with COVID-19 (Omicron) found that the median severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) viral load reached its peak around the fourth or fifth day from the day of onset of symptoms. The sensitivity of the antigen rapid diagnostic test ranged from 30% to 60% on the day 1; it increased to 59.2%-74.8% on day 3 and reached 80%-93.3% on day 4... (Source: *Clin Infect Dis*. Sept. 28, 2023).

PEMBROLIZUMAB FDA APPROVED FOR RESECTABLE NON-SMALL CELL LUNG CANCER

Pembrolizumab, a monoclonal antibody, has been approved for use as neoadjuvant treatment with platinum-containing chemotherapy for resectable non-small cell lung cancer, either node-positive or tumor size ≥ 4 cm. It has also been approved for use as a single agent as post-surgical adjuvant treatment in these patients... (Source: *US FDA*. Oct. 16, 2023).

THE FIRST COMPLETE SEQUENCE OF A HUMAN Y CHROMOSOME

The complete sequence covering all 62.5 million DNA bases on the human Y chromosome has been constructed by scientists in a study supported by the National Institutes of Health (NIH) and is named T2T-Y. It is

the final human chromosome to be fully sequenced. The new sequence reveals important features such as the azoospermia factor region involved in sperm production. Gene array i.e., genes with many copies was identified as another feature of the chromosome. The study led by the Telomere-to-Telomere (T2T) Consortium is reported in the journal *Nature*... (Source: *NIH*. Aug. 23, 2023).

IMPACT OF ISOLATED DIASTOLIC HYPERTENSION IN CKD PATIENTS

In chronic kidney disease (CKD) patients, who were a part of the Chronic Renal Insufficiency Cohort (CRIC) study, isolated diastolic hypertension but controlled systolic hypertension (SBP ≤ 130 mmHg and DBP > 80 mmHg), was not associated with an increased risk of adverse kidney or cardiovascular events or all-cause mortality... (Source: *Kidney Medicine*. Sept. 22, 2023).

NIVOLUMAB GETS FDA NOD FOR RESECTED STAGE IIB/C MELANOMA

Patients, aged ≥ 12 years, with completely resected stage IIB/C melanoma can now be treated with nivolumab following FDA approval for this indication. Nivolumab is a programmed death receptor-1 (PD-1) blocking antibody... (Source: *Medscape*. Oct. 16, 2023).

THE GENETIC BASIS OF RAYNAUD'S DISEASE

New research published in *Nature Communications* has suggested a genetic predisposition to Raynaud's disease. Two new genes, ADRA2A and IRX1, have been identified as contributing to the risk of the vasospastic attacks or Raynaud phenomenon, which till now has been thought to occur in response to cold... (Source: *Nature Communications*. Oct. 12, 2023).

COVID VIRUS INFECTS ATHEROSCLEROTIC PLAQUES IN CORONARY ARTERIES, FINDS STUDY

Analysis of human autopsy tissue has detected SARS-CoV-2 in atherosclerotic plaques in the coronary arteries in cases with severe COVID-19. The virus particularly targets the plaque macrophages. The ongoing inflammation may trigger acute cardiovascular events and increase long-term risk of cardiac complications... (Source: *Nat Cardiovasc Res*. Sept. 23, 2023).

A TRIPLE COMBINATION TOPICAL GEL FOR ACNE VULGARIS

A fixed-dose combination of 1.2% clindamycin phosphate, 0.15% adapalene and 3.1% benzoyl peroxide has

been approved by the US FDA as treatment of acne vulgaris in patients aged ≥ 12 years. It will be marketed under the brand name of Cabtreo... (Source: *Medscape*. Oct. 25, 2023).

STUDY LINKS POSTMENOPAUSAL STRESS TO DEPRESSION

New research presented at the annual meeting of the Menopause Society has linked acute stress in perimenopausal or early postmenopausal women to higher incidence of more severe depressive symptoms. Women with chronic stress were more likely to experience problems with memory and concentration... (Source: *Medscape*. Oct. 25, 2023).

TRAUMATIC EVENTS IN CHILDHOOD: A RISK FACTOR FOR HEADACHE DISORDERS?

Traumatic or adverse experiences during childhood are associated with more frequent headaches in adulthood,

according to a meta-analysis of trials spanning 19 countries. Risk of headache disorders increased by 48% among those who had suffered one or more traumatic events as children. The risk of headaches increased by 46% with threat traumas and 35% with deprivation traumas. More the number of traumatic events, greater was the risk... (Source: *Neurology*. Oct. 25, 2023).

FDA APPROVES THE "FIRST & ONLY" SUBCUTANEOUS INFLIXIMAB FOR INFLAMMATORY BOWEL DISEASE

Patients with moderately to severely active ulcerative colitis and Crohn's disease can now be treated with subcutaneous infliximab-dyyb as maintenance therapy following treatment with an IV infliximab product. This is the only subcutaneous formulation of infliximab, tumor necrosis factor- α inhibitor, that has been approved by the US FDA... (Source: *Medscape*. Oct. 23, 2023).



Covishield Booster Elevates COVID Antibodies: Research

A study carried out by the physicians at Veer Surendra Sai Institute of Medical Sciences and Research (VIMSAR) in Burla and published in the Springer Nature Group's worldwide journal *Cureus* and western Odisha observed a substantial rise in COVID antibody levels following the administration of the Covishield booster shot, suggesting improved defense against the virus.

According to Dr Sanjeeb Mishra, the study's co-corresponding author, there were 132 health care professionals involved, the majority of whom were female and had a mean age of 35. At least 9 months after the second dosage was administered, they received the booster injection. The findings demonstrated a considerable rise in antibody levels following the booster dose, with a mean-fold increase of more than 30%.

Mishra further revealed that the study unveiled a positive correlation between an extended interval between the second dose and the booster shot and higher antibody levels. It was observed that 38 individuals had alarmingly low antibody levels before the booster, emphasizing the critical importance of timely intervention.

The study's findings underscore the substantial enhancement of viral immunity achievable through a third booster injection, which is particularly advantageous for health care professionals who face heightened exposure risks.

The study also emphasizes how crucial it is to monitor the antibody levels following the booster dose to provide the best possible defense against the infection.

(Source: <https://www.msn.com/en-in/health/nutrition/covishield-booster-shot-significantly-enhances-antibody-levels-against-covid-study/ar-AA1iikdj?ocid=msedgntp&pc=NMTS&covid=03c76fa02e3f47f3ada2b987d5bab201&ei=9>)