

Favipiravir: A light of hope for COVID-19

IFFAT ARA

The antiviral drug Favipiravir, better known as Avigan, is being trialed as a treatment for the novel coronavirus disease (COVID-19). Avigan is the brand name of the drug Favipiravir, it was developed by the Japanese Fujifilm Toyama Chemical Company, has emerged as a potential drug to treat patients infected with the deadly novel coronavirus.

Two renowned pharmaceutical industries of Bangladesh have manufactured this drug in their plant for the trial of COVID-19 patients in Bangladesh. Other pharmaceutical industries are also in the process of getting permission to produce the drug from the Directorate General of Drug Administration (DGDA), Bangladesh.

In Japan, Favipiravir was approved in 2014 for sale domestically under the brand name Avigan for stockpiling against influenza pandemics. Testing in the development stages, however, revealed that the drug can result in elevated blood uric acid levels and cause deformities in the unborn young of animals.



This anti-influenza drug has shown some promise in the fight against COVID-19, but experts warn that it has known side effects and that there is insufficient clinical data for its use. Favipiravir works by blocking the ability of a virus to replicate inside a cell. It induces lethal RNA transversion mutations, producing a nonviable viral phenotype.

Favipiravir is a prodrug that is metabolised to its active form, favipiravir-ribofuranosyl-5-triphosphate, available in both oral and intravenous

formulations. It does not inhibit RNA or DNA synthesis in mammalian cells and is not toxic to them.

However, Favipiravir has not proven effective in primary human airway cells, casting doubt on its efficacy in influenza treatment. Japan approved favipiravir for treating influenza strains unresponsive to current antivirals. The Japanese Fujifilm Toyama Chemical Company initially hoped that favipiravir would become a new influenza medication that could replace oseltamivir (brand name Tamiflu).

On the other hand, animal experiments show the potential for teratogenic effects, and the approval of production by the Ministry of Health, Labor and Welfare was greatly delayed and the production condition is limited only in an emergency in Japan.

The Italian Pharmaceutical Agency, however, has reminded the public that the existing evidence in support of this drug is scant and preliminary. Favipiravir has shown limited efficacy against the Zika virus in animal studies, but was less

effective than other antivirals such as MK-608. The agent has also shown some efficacy against rabies and has been used experimentally in some humans infected with the virus.

A study of 80 people in comparison to ritonavir found that it reduced viral clearance time and that 91% of people had improved Computed Tomography (CT) scans with few side effects. The limitation of this study was that it was not randomised, double-blinded and placebo-controlled.

The drug has been approved for use in clinical trials of the novel coronavirus disease 2019 in China and at the same time, in March 2020, Italy also has approved the drug for experimental use against COVID-19 and has begun conducting trials in three regions most affected by the disease. Though this drug is on the trial process and in some cases on phase II or III, this drug could be a light of hope for the treatment of COVID-19 until we get a better option.

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SUGAR LEVEL

Glucose levels linked to maternal mortality, even in non-diabetic women

An elevated pre-pregnancy HbA1c — which measures average blood glucose concentration — is associated with a higher risk of adverse pregnancy outcomes even in women without known diabetes, according to a new study published recently in *PLOS Medicine*.

Diabetes mellitus and obesity are both associated with adverse pregnancy outcomes but the relationship between pre-pregnancy A1c and severe maternal morbidity or maternal mortality is unknown.

Overall, the risk of severe maternal morbidity (SMM) or death from 23 weeks gestation to 6 weeks postpartum was 2.2%. For each 0.5% absolute increase in A1c, the relative risk of SMM or death was 1.16 (95% CI 1.14-1.19, p(0.001) after adjusting for maternal age, multifetal pregnancy, world region of origin, and tobacco/drug dependence.

The authors note that most women do not undergo A1c testing, which may have led to selection bias among the cohort. Additionally, pre-pregnancy body mass index was unknown for 77% of the participants. Therefore, the potential interaction between BMI, A1c and risk of SMM should be investigated further. Still, these findings have implications for pre-pregnancy health screening.

HEALTH bulletin



Disrupted sleep increases the risk of cardiovascular disease by promoting inflammation

Sleep disruption has been shown to be associated with an increased risk of atherosclerosis, but the mechanism has been unclear. A new study in the open-access journal *PLOS Biology* reveals that fragmented sleep exacerbates atherosclerosis and may raise the risk of stroke via an effect on inflammatory pathways. These results provide a mechanism to explain the long-standing observation that poor sleep increases the risk of heart disease and stroke, and suggest simple and direct ways to reduce such risk.

The authors found that sleep fragmentation, as measured by actigraphy, predicted both higher neutrophil (but not monocyte) counts and higher coronary artery calcium, a measure of atherosclerosis pathology. They showed that the influence of sleep fragmentation on coronary artery calcium was mediated through the increase in neutrophils; in other words, poor sleep led to an increase in neutrophils, which in turn led to an increase in atherosclerosis.

Improving sleep may offer a novel way to reduce inflammation and thus reduce the risk of atherosclerosis. These findings may help inform public health guidelines that seek to increase the continuity of sleep as a way to improve health and decrease the burden of heart disease on society.

Coronavirus infection in children

PROF M KARIM KHAN

The coronavirus outbreak has become a global problem, creating panic and concern all over the world. The pandemic has restricted movement, paralysed business and affected the economy in many countries including Bangladesh. The World Health Organisation (WHO) has declared it as a pandemic and global emergency.

Coronavirus is a large family of viruses that cause illness ranging from the common cold to severe respiratory distress. The novel coronavirus disease (COVID-19) is a very contagious disease and has claimed the lives of about half a million people worldwide. COVID-19 started its journey from Wuhan, China and now has spread over 195 countries of the world. Bangladesh has recorded more than 60,000 confirmed cases and around 900 deaths so far.

The novel coronavirus can affect anybody, from neonates to adults. Fortunately, children are being less affected by it and their signs and symptoms are not exaggerated. Why are the children less affected is not so clearly known. The reasons might be that they might be exposed less, their receptor for viruses are less or they might have better immunity than adults and develop better antibodies.

Based on available evidence, children do not appear to be at high risk for COVID-19. Elderly people with comorbidity is more at risk. China conducted a research on 2,143 paediatric patients, among which two-third were suspected cases and the rest were laboratory-confirmed COVID-19 cases. About 4% of them were asymptomatic,

51% had mild illness and 39% had moderate illness. Boys and girls were equally affected. About 6% had severe illness compared to 18.5% of adults. They also found infants develop more critical manifestation than older children.

As it is a new virus we must wait for more information and explanation regarding children's infection. Whatever may be the seriousness we have to prevent it and the steps of prevention are the same for everyone.

Frequent hand washing for at least 20 seconds with soap, using alcohol based sanitisers, maintaining social distancing, staying at home and avoiding touching the nose, mouth and eyes with unclean hands are imperative.

Having lukewarm water often and increased intake of vitamin C is also

important. The use of proper masks while going out and proper disposal of used tissue papers after coughing or sneezing are important. It is better to avoid the consumption of raw or uncooked food.

By any means we must prevent/ lower the community transmission and the best way to do that is to keep yourself at home. Do not come out of your home until it is very much essential. Social, religious or political gatherings must be halted and avoided. Public transportation should also be avoided.

It is important to not panic. Be cautious, be safe and make others safe by staying at home.

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Breastfeeding helps counteracts BMI gain

For people whose genes put them at risk of becoming obese, exclusive breastfeeding as a baby can help ward off weight gain later in life. These findings from a new study were published recently in *PLOS Genetics*.

A growing body of research suggests that babies who consume only breastmilk are less likely to be overweight as children or adults, but the reasons behind this and other benefits of breastfeeding are not well understood. The authors investigated whether the weight-reducing impact of breastmilk can counteract the effects of genetic variations that increase the odds that a person will become obese.

In 18-year-old boys whose genes put them in the "high-risk" category for obesity, exclusive breastfeeding until 5 months of age reduced their BMI (Body Mass Index) by 1.14 kg/m². In girls, the impact was even larger, with a reduction of 1.53 kg/m².

Breastfeeding exclusively until 3 months of age, or a mix of breastmilk and formula, did not cause the same BMI reduction in high-risk individuals. The World Health Organisation (WHO) recommends that all babies be breastfed exclusively until 6 months of age, but globally, only about 40 percent of babies breastfeed until this age.

The new findings reinforce the WHO's recommendation and suggest that a longer duration of exclusive breastfeeding may have the greatest benefits for individuals with a high risk of obesity.

/StarHealthBD

HOW TO HOME QUARANTINE

The home quarantined person should:



Stay in a well-ventilated single-room preferably with an attached toilet



Needs to stay away from elderly people, pregnant women, children



Restrict his/her movement within the house



Under no circumstances attend any social/religious gathering



Wash hand frequently with soap and water or with alcohol-based sanitizer



Avoid sharing household items like dishes, glasses, cups, utensils, towels, bedding



Wear a surgical mask at all time. The mask should be changed every 8-8 hours

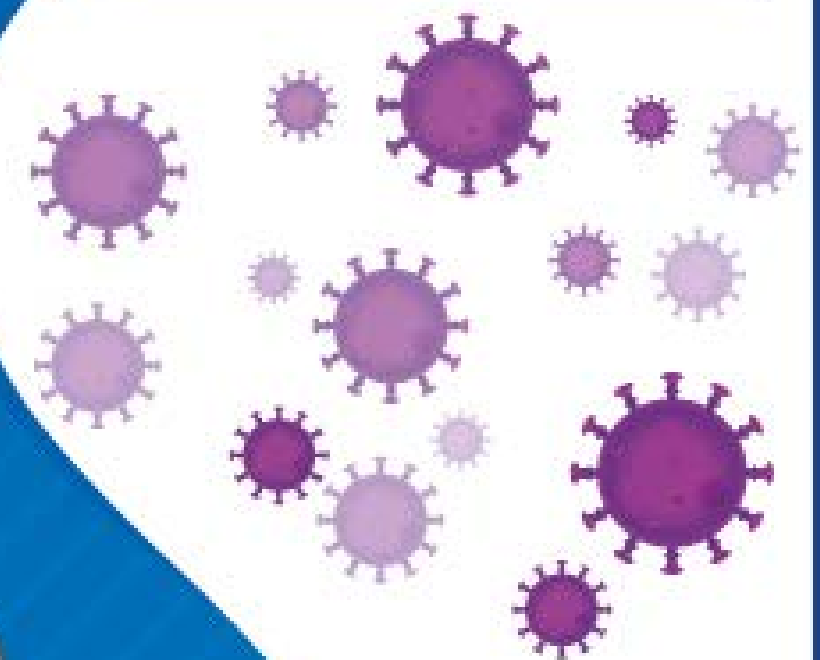


Dispose off used mask in a closed bin and bin should also be handled responsibly



If symptoms appear, he/she should immediately inform the nearest health centre

COVID-19 OUTBREAK



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