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Review Article

XE variant of the novel coronavirus

Sayan Bhattacharyya^{1,*}, Rohit Kumar²¹Dept. of Microbiology, All India Institute of Hygiene and Public Health, Kolkata, West Bengal, India²Dept. of Microbiology and Immunology, Avalon University, School of Medicine, The Antilles, Netherlands

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ABSTRACT

The COVID pandemic is still raging across the world. The XE variant has newly emerged and at present, many cases are being reported from Northern and Western India as well. Possibly it is a hybrid recombinant strain of BA. 1 and BA. 2 strains of the Omicron variant of SARS-CoV2. Cases are still mild with few symptoms, and are mostly self-limiting. However, the presenting features can be very non-specific.

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1. Introduction

The Novel Coronavirus has been responsible for the pandemic of COVID-19 right from March 2020. The parent wild strain of the virus (WA-1) originating from Wuhan, China, has mutated much over time, and subsequently led to the development of many mutants and variants. Some of them are Variants of interest (VOI), while others were variants of concern (VOC). Right now, people around the world are experiencing the fourth wave of the pandemic, and it is believed to be due to the BA.2 subvariant or sublineage of the Omicron variant. The first few cases of the XE variant were noted in United Kingdom in January, 2022.¹ Since January 2022, more than 1100 cases of the XE variant have now been reported worldwide.² In fact, in the UK alone, more than 637 XE variant cases have been found till end of March, 2022.³ It has also been found to be 10 times more transmissible than the Omicron variant. The World Health Organization (WHO) has hence listed the XE variant as a possible Variant of concern (VOC). The B.1.640 and XD variants are now listed as Variants under Monitoring (VUM).⁴

2. Materials and Methods

Scientific literature search was done by Pubmed and other search engines.

2.1. Evolution of the XE variant and nomenclature

So far, 3 hybrid or recombinant strains of the Novel Coronavirus have been detected. They are: XD, XF and XE variants.² On March 25, 2022, the UK Health Security Agency declared that a new recombinant BA.1–BA.2 variant of Omicron (designated XE) has been detected via gene sequencing, first on January 19, 2022.⁴ At that time, the transmissibility of this variant was unknown. At about the same time, the Deltacron variant was also reported. This Deltacron variant was first reported in Paris, France in February 2022. This variant has actually emerged from the recombination of the Delta and Omicron VOCs of SARS-CoV2. India's first XE variant case was reported in April 25 in a bulletin released by the Indian SARS-CoV2 Genomics Sequencing Consortium (INSACOG).⁵ XD and XF variants are recombinations of Delta and Omicron variants.⁶ Hence they are also called "Deltacron" strains, and currently there is no proof that they are more transmissible than the Omicron variant.⁷ Till now there have been more than 1100

* Corresponding author.

E-mail address: sayantheboss@yahoo.co.in (S. Bhattacharyya).

cases of the XE variant, and the majority of these cases have been found in the south and eastern part of England.⁸ The XE variant appears to be about 10% more transmissible than the parent variant BA.2, which was previously the most infectious strain of the SARS-CoV-2 virus.⁷ Besides the UK and Canada, other countries like Japan, India, Thailand and Israel, have also identified XE cases recently.⁷ These can also be linked with more or reopened international travel.

2.2. Possible reasons for emergence of the XE and other hybrid variants

Actually, the low global vaccination rate encourages this emergence of the SARS-CoV-2 subvariants. This is because the virus can still circulate actively among a few members of the communities, including the unvaccinated adults or children, immunocompromised hosts, or those older than 75 years of age. Also, meanwhile many countries have eased or lifted the COVID-19 countermeasures and curbs, regarding mass-gatherings and have opened their borders to international travel. Many variants can circulate together in the same hosts and thus encourage development of recombinant and hybrid strains. These are the possible reasons put forward for emergence of so many mutants, variants, hybrid and recombinant strains.

2.3. Clinical features

Symptoms of the XE variants are often non-specific, and include fever, cough and bodyache.² Unusual symptoms like skin rashes, nausea and vomiting have also been reported frequently. Even diarrhoea or loss of appetite may be seen. However, infections are mostly mild and there is till now no indication that it is more severe than other variants of SARS-CoV2.

2.4. Severity

Currently there is no evidence to suggest that XE variant is more severe than others. Scientists also feel that other recombinant strains or variants which contain spike and structural proteins from different virus families, like XD has, are a “little more concerning”.⁷ Hence XE variant is likely to lead to mild episodes of COVID.

2.5. Laboratory diagnosis

RT-PCR and whole genome sequencing are possible solutions to detect the virus accurately and pick up the characteristic mutations or sequence changes in genome. However, existing rapid tests or card-based tests may not be able to pick up the new variants of the SARS-CoV2, including XE, Omicron and Delta. They were originally designed to pick up the parent strain or WA-1.⁹

2.6. Treatment

Bed rest and isolation are advised, as for other strains. The illness due to XE variant is self limiting and rarely very serious or fatal.

2.7. Vaccine induced protection

XE variant possibly shares similar characteristics with BA.2 because most of its makeup, epitopes, including its spike protein, which come from that strain. This implies that vaccinations (which target the spike protein) may offer similar levels of protection against XE as for BA.2. Vaccines do prevent serious illness and death in cases of infection due to new variant.

3. Conclusion

It is very natural for RNA viruses to mutate and also to develop recombinations. Detection of XE and different forms of the “Deltacron” variants in countries isolated by great distances also suggests that the same or different variants may soon be appearing and be reported by other countries, also.⁴ A fourth wave is likely due to XE or other such new variants, but the severity of cases may be less due to vaccine -induced immunity, and it may not be full-fledged wave even. It is thus prudent to remain alert and vigilant about this new variant so that its epidemiological and genetic course can be mapped. However, there are some challenges like decline in the number of tests done for SARS-CoV-2 in many countries. This means that available data on new variants are “progressively less representative, and less timely”.⁷ More travel and eased restrictions may spread the new variants more, which may also become a challenge in future. All these things remain to be seen. More research is warranted in these aspects.

4. Source of Funding

None.

5. Conflict of Interest

None.

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Author biography

Sayan Bhattacharyya, Associate Professor

Rohit Kumar, Associate Professor

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