The Omicron variant and potential predictions of secondary infections

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The Omicron¹ variant has been recently discovered by a group of researchers in South Africa, which established its African origin, a continent where bat-hunting and eating habits are still active. We did expect that the delta variant would not be as transmissible as the previous hydrophilic variants, particularly the one the N501Y mutation, which was in fact more transmissible and aggressive, the delta variant was milder in its viral form, but allowed for the weakening of the immune system to the extent of leaving the organism open to fungal infections which were life-threatening.

As sequencing data is still not available, only a few observations can be made through this short perspective, which have not been made previously.

“pH adjustments” are driven by amino acids within the spike or other proteins in the viral sequence

As amino acids can be neutral, or acidic, or basic, this can predispose the virus to provide for and seek for environments that share a similar pH. In the first case, we could think that the metabolism of proteins whether imparted by the spike protein or other viral proteins (i.e. structural) provides for a neutral pH as proteins themselves are neutral and both carbon dioxide and ammonia by-products are released in our organism during the viral protein metabolic activity, however, this is not always obvious, as with “excessive” nitrogenous side chains the amount of nitrogen (more precisely, of urea) released can increase that same pH, and shift it towards slightly basic.

As far as we are concerned, the previous novel coronaviral mutants have all provided an acidic pH, which has made us “accessible”, in particular, in the delta variant case, to secondary fungal infections.

¹Zuckerman N.S., Fleishon S., Bucris E., et al. A Unique SARS-CoV-2 Spike Protein P681H Variant Detected in Israel. 2021;9(6):616. doi: 10.3390/vaccines9060616. PMID: 34201088; PMCID: PMC8228438.

If the viral “trend” was to change, then we could expect a shift towards a basic environment too as a potential survival pathway by the virus, which can ultimately lead to bacterial secondary infections, so it is still possible to predict the inclination of the virus. We are not going to expect drastic mutations that will make the virus deadlier, we can expect transfer to more “seductive” hosts, such is the bat which previously offered a really ideal setting for the virus to grow and “prepare”, before infecting the human and domestic animal hosts, but we could also predict several scenarios, and an “opening” to secondary bacterial infections that prefer to grow in basic environments. Clearly, these environments are not drastically basic, or acidic, although acidosis is common in CO₂ respiratory and metabolic environments, and have been a “complication” of the SARS-CoV-2 syndrome, perhaps cyclically too, in which the virus provided and requested the maintenance of a low pH to persist. Another couple of observations can be made in the latter case, in fact, it can be expected that a decreased requirement of CO₂ and provision of the same is what makes the coronavirus increase interest in maintaining the acidic pH, if it were, however to shift into other compartments of the hosts, that pretend basic adjustments then the mutations would be oriented at providing its more basic metabolic by-products; moreover, we could also predict the same parasitic lifestyle which it had with fungi that we could also imagine in the case of bacteria, favouring again, basic environments. In that way through secondary infections the viral variants could become potentially life-threatening, but otherwise, it is difficult to imagine that the virus would mutate in a way that it can survive in a human host, as the human host has several back-up organs, that maintain homeostasis and help fighting the virus. In addition, the vaccine will prevent this from happening, therefore it is important to continue vaccinating the hosts, with opportune and safe vaccines, with the right potency-effectiveness of the same, through appropriate dilutions and no errors, in a way to finally eradicate the covid-19, at least, in the human. One last point is the vaccination from secondary infections, whilst waiting for mass vaccination to be complete.

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