

Model to explain the low incidence of the Coronavirus infection in children: epidemiological, anatomical and physiological analysis



The Coronavirus epidemic has raised a lot of attention and many questions, which have been discussed in a very controversial way. It is a question of origins, distribution, progression, vaccinations etc.

One of the big questions, for which there are only summary explanations as yet, is posed by the very low percentage of the infection in children compared to adults.

The aim of this contribution is to determine the true reason for this surprising difference through analysis of epidemiological data, the analysis of modes of transmission of the virus and the analysis of the anatomical and physiological differences between children and adults.

Results:

The recent literature shows a very limited or even absent incidence of the Coronavirus infection in children (Eckhard Nagel 2020). Another fairly recent fact concerns the analysis of the modes of transmission of Coronavirus. At present the accepted mode of transmission of the virus, besides droplets and contact, is also transmission by aerosol.

The analysis of the behavior of the respiratory tracts shows a marked difference between children and adults. According to the Deutsches Aerteblatt (Aerosoltherapie bei Kindern, Deutsches Aerteblatt 96:34-30,30. 1999) only particles under 10 micrometers reach the lower respiratory tract in healthy adults. Only particles under 0.5 micrometers reach the alveoli.

Anatomically children have a smaller diameter of the upper

respiratory tract and an increased activity of the cilia. This is why only particles under 3 micrometers in diameter reach the lower respiratory tract. The others remain trapped in the upper tract (Kamin, Erdnuess 03/09/2014).

Discussion:

To be able to cause an infection, the Coronavirus, like all viruses, needs an entry point, which in most infectious diseases is usually unique, specific.

If transmission of the Coronavirus took the entry point postulated by virologists (droplets and contact), there should be no difference in incidence between adults and children. But epidemiological studies prove the contrary. This discrepancy between theory and fact has led the scientific world to develop various theories (reduced density of the receptors for the virus, immaturity of the receptors, cross-immunity due to previous vaccinations etc.), none of which as yet remotely accepted.

The evaluation of the epidemiologic, anatomic-physiological data allows us to put forward a different explanation to the afore-mentioned one. (See Einstein on simplicity: "Everything should be made as simple as possible, but not simpler"):

It is well known that the virus (Leitblatt der Bundesregierung Deutschland) is probably over 5 micrometers in diameter, even if other sources report a lower diameter. (As the surface of the virus is not homogeneous, the actual values of the diameter are indicative).

Following my theory (presented elsewhere) that transmission of Coronavirus is not through droplets or contact but only by aerosol, it is evident that the virus is already trapped in the upper respiratory tract and, unable to reach its entry point, the lower respiratory tract, it cannot trigger the infection. Positivity detected in the upper respiratory tract is only secondary and irrelevant (it does not imply any immune response) as regards eventual contagion.

Conclusion: This study shows that such a low incidence of Coronavirus infections in children is explained by the anatomical particularities of their respiratory tract and reinforces the theory that transmission of Coronavirus occurs only by aerosol.