

Rhinitis

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Infectious rhinitis (or common cold) is the most common acute human disease. It is caused mainly by viruses of the genus *Rhinovirus* (more than half of the cases). About a quarter of the cases is caused by coronaviruses, followed by flu viruses and adenoviruses.

Pathogenesis and pathogenicity

The incubation period for infectious rhinitis is 12-72 hours (usually 2 days for rhinoviruses and 3 days for coronaviruses). The first symptoms include sore throat, stuffy nose, swelling of the nasal mucosa, increased secretion (inflammatory mediators are responsible for nasal discomfort, not the viral infection itself). They are associated with headaches, pressure in the face and ear, loss of taste and smell. Cough also occurs in 30 % of cases and hoarseness in 20 %. Fever is unusual.

The role of getting cold

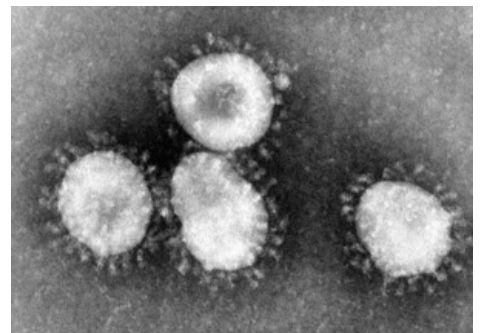
Empirically infectious rhinitis is often preceded by cold in the feet. Pathophysiologically, we could explain this by the fact that cooling of the limbs causes reflex vasoconstriction of blood vessels in the nasal mucosa, which is thus cooled. If rhinoviruses are present on it at that time, there is a greater multiplication (the optimum is 33 °C, they die at 37 °C) and at the same time, the activity of the ciliary epithelium decreases at a lower temperature.

Coronaviruses

It belongs to the family *Coronaviridae*. They are enveloped RNA viruses with spiral symmetry. The virions are lined with conical protrusions. There is the glycoprotein HE on the surface, which binds to the cell membrane and is responsible for hemagglutination and hemadsorption, and also removes acetyl groups. The envelope contains protein M. In human coronaviruses, the protruding glycoprotein S binds to the cellular receptor - aminopeptidase. After that, the viral envelope and the cell membrane merge.

In addition to infectious rhinitis, they cause common diseases in livestock and domestic animals. They can cause pneumonia in humans.

SARS – Severe Acute Respiratory Syndrome is also a disease caused by a coronavirus. However, the causative agent of SARS is completely different from other human coronaviruses. Therefore, it is assumed that it came to humans from its animal host - civet. (The virus isolated from healthy civet was almost identical to the causative agent of SARS.) The disease occurred mainly in China, Hong Kong and Taiwan - areas where civet meat is considered a delicacy. The virus was also easily transmitted to nursing staff and spread by airplanes to other countries - such as Canada. Effective therapy is not known yet.



Coronavirus – the agent of SARS

Epidemiology

In young children, the cold is caused mainly by rhinoviruses, while in adults it is mainly caused by coronaviruses. Transmission occurs mainly through sneezing droplets, but also through contaminated objects or contaminated hands, for example through the conjunctiva. The most susceptible are small children, who get rhinitis on average 6 times a year. Rhinitis is more common in the cold season. Untreated rhinitis lasts approximately 10 days.

Diagnostics

Rhinovirus cultivation is not required, serology is type-specific. Coronavirus cultivation and serology are not routinely performed.

Therapy and prevention

Treatment is usually symptomatic. Immunity is type-specific and short-term. Many serotypes (especially rhinoviruses) cause huge vaccine development problems. Increasing non-specific resistance (e.g. by going to sauna) is debatable.

Links

Related Articles

- Flu
- Angina
- Coronaviruses

External Links

- <http://www.lf2.cuni.cz/info2lf/ustavy/ulm/predn/virologie.htm>

References

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- RAJNIK, Michael – MURRAY, Clinton – HOSPENTHAL, Duane. *Rhinoviruses* [online]. WebMD LLC, The last revision 2008-06-30, [cit. 2011-02-26]. <<https://emedicine.medscape.com/article/227820-overview>>.