SANUM-Kehlbeck

Viruses know no boundaries

Webinar 17. April 2020

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Viruses know no boundaries

How many viruses are there in the world?

There are more viruses than stars

- 10^{33} viruses
- 10^{25} stars

What are viruses?

- often seen in connection with bacteria and lower fungi as microorganisms
  - no living beings
  - no metabolism of their own, thus no own protein synthesis and no possibilities of energy production

- consist of genetic material, i.e. DNA or RNA

How do viruses multiply?

Viruses

- require a plant, animal or human host cell
- "dock" to host cell and inject their genetic material into the cell to replicate the virus

If the cell is full of viruses, it bursts (lysis) and releases thousands of viruses into the environment.

Or

Viruses can persist in the host cell and remain dormant for years, so called slow virus infection.

Viruses do not gear towards destruction

Viruses use the organism as the basis of life

- life cycle is not primary and is not geared towards individual destruction of the host organism
- viruses colonize humans together with bacteria and fungi → together they form an ecosystem

In comparison, humans consist of 10 trillion human cells, 100 trillion bacterial cells and 1000 trillion viruses.

Which significance do viruses have for humans?

- viruses existed on earth long before humans
- viruses come in the beginning followed by bacteria and fungi
- approximately 8% of the human genome today is of viral origin

Viruses are therefore not primarily pathogens, but change and shape the genetic material of plants, humans and animals

Virobiota

- microbiota: the bacterial flora of the intestine, which interacts with the immune system and can train it
- research group published a paper in 2019 in which they speak of a virobiota in the intestine, analogous to the microbiota
- viruses are probably involved in the regulation of the intestinal flora, in which they can take bacteria as a host cell and thus genetically modify or eliminate them

Viruses - scary pathogens?

- human civilization is spreading more and more, living space of wild animals is being lost
- due to the new closeness between humans and wildlife, the chance is greater that viruses will change their host and either infect other animal species or humans
- a strategy by which the viruses also continue to secure their own livelihood

2/3 of the viruses that cause diseases in humans have their origin in wild animals, e.g. SARS

SARS family of viruses

- differ greatly in their antigenic external structure from viruses which are known to the "general" human immune system
- can lead to strong immunological reactions and diseases in a large number of people
  - o often heal independently due to the diversity and mutability of the immune system
  - o a higher age can affect the healing process due to a decreasing function of the immune system, a generally weakened immune system or chronic diseases

Defence Mechanisms - the mucous membranes: initial barrier (I)

Viruses enter the body via air or through direct contact, e.g. hands.

- mucous membranes connected to the ciliated epithelium of the upper airways
- physical, biochemical barrier, often prevent further penetration of germs into the body
- through the Waldeyer's pharyngeal ring, the immunological cellular defence is carried out
- moisture retention is mainly due to oral saliva, tear fluid and bronchial mucus

Defence Mechanisms - the mucous membranes: initial barrier (II)

- especially in viral diseases the activity of NK-cells is important
- they detect and eliminate virus-infected cells and thus prevent further spread of the virus

These primary defenses of the mucous membranes in the upper respiratory tract can prevent a more serious infection, of the lower respiratory tract, such as the lungs.

What impairs the immune function of the mucous membranes?

- mechanical damage to the mucous membrane, e.g. by toxins and lack of fluid

- previously unknown receptors could exist on the mucosal cells that outwit the immune system, so that the viruses enter the body via a kind of Trojan horse

In which patient groups could the immune function of the mucous membranes be reduced?

- advanced age: number of stem cells, which are the precursor cells of the immune system, decreases
- immunosuppressed patients
- diabetics often suffer from dry, scaly skin and dry mucous membranes
- patients with chronic lung diseases (COPD, asthma)

Other diseases associated with dry mucous membranes are rheumatic diseases. Acute and persistent stress leads to dry mucous membranes.

Which factors contribute to a viral infection of the respiratory tract?

- poor breathing air due to dust and environmental toxins
- smoke with its toxins dries out and degenerates the oral mucosa more quickly. In addition to the reduced protection against viruses, due to the weakened mucous membrane barrier, a consequence of this is also frequent inflammations in the mouth, e.g. periodontitis.

What hygiene measures are recommended to protect against virus infections?

Viruses are often transmitted through a droplet infection

- shaking hands should be avoided
- washing hands with soap for at least 30 seconds
- do not sneeze freely, but in the crook of the arm
- in the case of particularly aggressive viruses, infected patients should wear a mouth guard
- "feel-good" measure is to humidify the room air with an essential oil which has an antiviral effect

How can mucous membranes be strengthened? (I)

- strengthen the immune system
  - mainly nutrition
  - exercise
  - lifestyle (stress)
- a good fluid supply through water and herbal teas
- moisturizing the nose with a nasal spray
- eating linseed and gruel cares
- medicinal plants prepared and consumed as teas
  - marshmallow (Althaea officinalis)
  - wild mallow (Malva sylvestris)
  - Icelandic moss (Cetraria islandica)

Additional support of the general antiviral defence

- medicinal plants
  - Pink Rock Rose (Cistus incanus) → coat the virus, thus reducing or preventing the adhesion and penetration of the viruses to the host cells
  - Cape geranium (Pelargonium sidoides) → interferon production is increased and more defensins are released - antiviral effect
  - Nasturtium (Tropaeolum major) and Horseradish (Armoracia rusticana) → the cells are protected from destruction by a virus and NK cells are activated

SANUM-Kehlbeck

- SANUM offers unique medicines which are made from specific microorganisms to specifically support the mucous membrane and the immune system in general

- many therapists use the SANUM remedies to vitalize the intestine and lung function

Questions concerning the SANUM Therapy should be addressed directly to your therapist or SANUM representative in your country.

Thank you very much
for your attention!

Stay healthy