Influenza or corona virus infection: Salicylate and lung hilum hyperthermia as inhibitors of disease progression during the incubation period *)

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SARS-CoV-2 infected patients (COVID-19) may suffer from severe respiratory problems and not recover despite high intensive care efforts (**1**). The observation of the author's flu episodes during the past 10 years was directed towards the identification of early intervention points within the incubation period of the viral infection sequence to inhibit potential disease progression towards pneumonia or severe acute respiratory distress syndrome (SARS, ARDS). Salicylate application in conjunction with lung hilum lymph node conditioning by temporary hyperthermia during the incubation period of influenza virus infections have reliably stopped typical disease outbreaks in a family environment during the past 4 years (no anti-flu vaccination). Initial symptoms in March of this year were dry cough and dryness in the upper trachea/larynx areas in two cases as well as locally distant in two other cases temporary loss of taste and smell despite absence of direct contacts for more than four weeks prior to disease outbreak.

Symptoms like dry cough, altered tracheal and respiratory sensation, temporary anosmia, fatigue, as well as muscle and joint pain or skin and light hypersensitivity are observed during corona or influenza virus incubation periods (37,3-37,9C body temperature (BT)). At the recognition of such symptoms, BT is determined to exclude non infectious (<37,3C) discomfort, followed by a 400mg effervescent aspirin tablet (only adults) as early symptom therapy and subsequently 3 or 4 tablets in 12 hour intervals (0-36/48h), totalling 1.6 or 2.0g of aspirin. Starting at the same time, local hyperthermia is applied to the lung hilus lymphnodes by drinking 4 cups (4x150=600ml) of 55-60C hot black or herbal tea in quantities between 10-20ml (half/full tablespoon) in *continuous sequence* to generate temporary *retrosternal warmth*. Smaller sips at higher temperature or larger quantities of lower temperature liquid do not generate the intended effect. It is recommended to start around 50C and to stepwise increase temperature according to individual tolerance to avoid thermal irritation of the oesophagus tissues. Tea drinking is continued at the subsequent time points (morning, noon or evening), followed by three hyperthermias per day (m, n, e) for 3-4 further days while the head and neck region is kept warm (cap, shawl).

Bronchial symptoms are significantly lowered within 3-4h after the first treatment and influenza disease will typically not break out. Cough decreases and disappears within a few days as well as a certain weakness of the circulatory system during physical work. Once the disease has broken out (typically >38C), salicylate, paracetamol or ibuprofen applications may attenuate symptoms but do *not* substantially influence disease course.

Despite the limited number of cases, it seems worth considering this *inoffensive approach* during the actual corona pandemia. The initial absence of humoral and cellular immunity (lympho-/monocytes, macrophages) against the SARS-CoV-2 virus in humans, leaves body defense in large parts to granulocytes and tissue macrophages. Granulocytes typically permeate blood capillary walls to phagocytize viruses and bacteria in lung tissue and alveoles where microorganisms are destroyed by diffusible reactive oxygen species like H2O2, molecular oxygen, hypochloric acid or enzymes such as myeloperoxidase or elastase. These effector molecules are likely to destroy bystander lung tissue, thereby preparing the ground for later

superinfection by inhaled bacteria, viruses or fungal spores. Salicylates reduce granulocyte extravasation from the blood stream (**2**), thus lowering the tissue damaging potential. At the same time granulocyte lifetime is shortened by accelerated apoptosis (**3**) and certain virus infections are inhibited (**4**). The remaining presence of granulocytes in the blood vessels provides higher intravasal virus phagocytosis capacity, thus potentially decreasing the extent of primary viremia during the virus incubation period. Primary viremia for influenza viruses is observed in mice (**5**) but not in human blood donors (**6**). Salicylates diminish in addition thrombocyte aggregability by irreversible cyclooxygenase blocking, thus counteracting the tendency for increased thrombus formation in COVID-19 patients (**7**). Hyperthermia in turn leads to lower virus replication in cells. This is partially due to a more efficient cellular antiviral response (**8**), and fever is accompanied by lower bacteria levels in patient blood (**9**). So as a tentative conclusion: Repeated temporary hyperthermias provide sufficient microorganism clearance in a structurally largely intact lung, which is less susceptible to bacterial superinfection despite salicylate induced lower granulocyte permeation into lung tissue and reduced granulocyte life span by accelerated apoptosis. Despite partial humoral and cellular immunity, the discussed sequence of events seems to equally prevail during influenza virus infections. Intensified efforts for individualized disease outcome predictions (**10** table 4) might favor the early identification of risk patients, thus permitting timely adaptation of therapy, as long as the body has not crossed the *recovery point*. Patients beyond this point die at a certain degree of bacterial superinfection in case of therapeutic inactivity, but also upon massive application of antibiotics, probably from toxic products of destroyed microorganisms.

References:

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***)** The above therapy concept was developed for family use. As a consequence of the increasing severity of the current corona pandemia, it was made available on the Internet on March 30, 2020. It will hopefully decrease the number of diseased as well as of intensive care patients at a more widespread application.

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