

LATENT CHLAMYDIAL INFECTIONS: THE PROBABLE CAUSE OF A WIDE SPECTRUM OF HUMAN DISEASES

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In 1977, MVDr. Jaroslav Renda and I noticed that both of us, as well as members of our families, suffered from strikingly similar health problems, problems often diagnosed in people involved in animal breeding. This brought us to the hypothesis that the cause of these problems could be an infectious agent of the same origin. The results of our ensuing research were published in 1992 (1, 29). In following years, we found out that health problems with very similar symptoms could be detected throughout the entire population (though with a relatively lower occurrence rate compared to animal breeders). This paper presents results of our almost forty-year long research into chlamydial infection.

Summary

Between 1980 and 1990, we amassed anamnesis data from 746 animal breeders on 31 farms, suffering from similar health problems and as a control sample we chose 146 people from various professions outside agriculture. A randomly selected group of 20 people from the 746 animal breeders were serologically tested for a wide range of infectious diseases (mycoplasmosis, tularaemia, leptospirosis, boreliosis, toxoplasmosis, listeriosis, and others). In the majority of the tested people, the analyses of these tests showed comparable serological response only in cases of chlamydial infection. Consequently, another randomly selected group of 157 people were serologically tested specifically for chlamydial infection. In 96% of these people, we diagnosed a serological chlamydial *response* to a general chlamydial antigen and *Chlamydia trachomatis* antigen.

Over the following eight years, these people were under medical observation and from one to four times a year they were serologically tested for various chlamydial antigens. Some of these sera were long-term stored at a temperature of -18°C and then gradually serologically tested to compare levels of specific antibodies with other antigen batches.

In addition, we also conducted a biological experiment on two *Chlamydiae* seronegative guinea pigs in an animal breeder's family where all family members suffered from long-term health problems and showed varying levels of chlamydial antibodies. The first health problems in this observed family started to appear several years after primo-infection of the animal breeder in 1965. The primo-infection of his eye was a result of the breeder's work with cattle diagnosed with and positively serologically tested for chlamydial infection. Three years later, the breeder was diagnosed with chlamydial infection of his right epididymis. The first problems diagnosed in the other family members were unspecified vaginal discharge, and later conjunctivitis and keratitis in the wife. Both the breeder and his wife were positively serologically tested for chlamydial infection and underwent a tetracycline antibiotic treatment. In spite of that, both of them, and later even their children, gradually started to suffer from various health problems, never before occurring in the family anamnesis. Prior to acquiring the infection, the family enjoyed perfect health and longevity (up to ninety years of age and more). The two guinea pigs were kept separately: one of them was fed on granulated feed and family food leftovers, the other on granulated feed only. After three months, the first guinea pig showed serological chlamydial response, whereas the other was seronegative. The seropositive animal later lost weight and died. Its internal organs were congested and small haemorrhages were found on its pleura.

After twelve years of intensive research, analyses and consultations with experts in both human and veterinary medicine, we finally came to the conclusion that the cause of a number of health problems and diseases could be identified in latent chlamydial infection. The findings of our research were published in journals of both veterinary and human medicine in the Czech Republic (1992), Germany (1992), and Great Britain(2005) (1, 29, 26). Due to persistent and deteriorating health problems in a majority of the examined people, we decided to continue in our research efforts and consequently discovered similar symptoms in people from urban, non-animal breeding communities, whose tests were also in many cases *Chlamydiae* seropositive.

The detected cause of the infection, observed health problems and diseases, as well as their origin and development were based on logical conclusions drawn from amassed results, long-term research and both anamnestic and diagnostic data obtained from infected people. In the late 2014 (thirty-one years after the first guinea pigs tests and forty-nine years after the breeder acquired chlamydial infection of his right epididymis), anamnestic data on the emergence and development of various diseases in the family of the infected breeder were collected. These are presented in table 3.

Table 3: Anamnestic data in the family of the infected breeder collected thirty-one years after the first guinea pigs tests and forty-nine years after the chlamydial primo-infection of his eye.

Disease	Genetically related family members n=38		Genetically not related family members n=93	
	number	%	number	%
Alzheimer's disease	1	2,6	5	5,4
Sudden failure of respiratory and circulatory systems	2	5,3	14	15
Diabetes	0	0	13	14
Cancer	0	0	12	12,9
Rapid tremor (hands, head)	3	7,9	1	1,1
Tinnitus	4	10,5	2	2,2
Suicides	1	2,6	2	2,2
Chronic fatigue syndrome	3	7,9	2	2,7
Leukemia	0	0	1	1,1
Encephalitis	2	5,2	0	0
Restless legs syndrome	1	2,6	0	0
Dementia in children - families	0	0	2	2,2
Range of subjective problems	33	86,8	71	76,3
Subjective problems in children	8	100	No data available	
Apoplexy, heart attack	0	0	8	8,6
Enlarged thyroid	3	7,9	1	1,1

Health problems listed in table 3 had never before been observed or diagnosed in the previous generations in the breeder's family anamnesis. It is interesting to notice that in the genetically related family members, where the longevity is ninety years and even more, the rate of serious diseases is considerably lower compared to the genetically non-related family members (in-laws and partners of the breeder's children). Genetically related family members (whose longevity might signal good immunogenetic dispositions) gradually developed frequent painful (in advanced age even severe) health problems (insomnia, high blood pressure, skin irritations, allergies, functional heart disturbances, headaches, tinnitus, tremor, thyroid enlargement, mental disorders, and more). Occasionally, even genetically related family members suffered from serious diseases. These findings might imply that latent *Chlamydiae* bacterial infection can cause a number of diseases and health problems in relation to the immunogenetic disposition of each individual or family. Other influences (lifestyle, age, length of persisting latent infection, etc.) can initiate onset of a disease and provide an inhibiting effect on the organism. In people with a good immunogenetic disposition, the infection causes a large scale of subjective, unpleasant sensations, while in people with a less resistant immunity system (genetically non-related family members), it can often cause serious health problems, even fatal diseases. Research reveals that in people with a good immunity system, chlamydial infection may set off sudden respiratory and circulatory systems failure (heart and respiratory muscles innervations disorders) and namely trigger a number of subjectively unpleasant health problems. These are caused by innervations problems in respective organ systems resulting from an intensive pathological brain dysfunction responding to sudden changes in weather (climatic bio-load). Symptoms similar to those found in the breeder's family were detected in a number of other families throughout the population, while modern medicine remains unaware of possible links with chlamydial infections. In the breeder's family, only one seventeen-year-old member, diagnosed with a chronic fatigue syndrome, was tested (and later positively serologically diagnosed with) chlamydial infection. Despite a month-long antibiotic treatment, the member's health problems still persist, which proves our findings that a short-term antibiotic treatment is inefficient in dealing with the latent stage of chlamydial infection. Another family member suffered from a wide range of severe health problems (severe pain in joints and muscles, dizziness, sudden, paresis-like, weakness in lower limbs, repeated brain fog, and various forms of subjective, unpleasant health problems) and despite extensive medical observations, outpatient department treatment, and multiple hospitalization in various clinics (neurology, infectious diseases, internal medicine, psychiatry) physicians failed to diagnose the cause of

these health problems. Various forms of long-term treatment were similarly ineffective. It was only after a ten-month combined antibiotic treatment (using Dr. Stratton's method) that the patient's problems almost entirely subsided and allowed return to normal life. The results suggest that the above mentioned health problems were of infectious origin (caused by chlamydial infection).

These conclusions are based on the following facts:

1. Strikingly similar health problems.
2. Hospitalized as well as examined people were tested for common zoonoses, yet none of these were detected.
3. Examined people and their families, in a majority of cases, did not suffer from the observed health problems when not in contact with animals. In the Czech Republic, many animal breeders originally worked in non-agricultural professions.
4. Family members who are not in direct contact with animals show symptoms of infection mostly with a considerable delay in comparison to the breeders themselves.
5. In a number of serological tests for various infectious diseases, a comparable antibody response appears only for chlamydial infection.
6. With varying frequency, some infected patients suffer from acute inflammations of internal organs, described in cases of *Chlamydiae*. In these patients, following the acute feverish inflammations, we observed a significant rise in specific chlamydial antibodies, which then gradually decreased to initial, usually low, values.
7. Long-term and repeated diagnostic examinations of these patients performed in various specialized medical facilities did not reveal any objective cause of their problems or diseases.
8. The current symptomatic treatment is not adequately efficient and even inefficient from a long-term point of view; the infection usually slowly, very gradually deteriorates and in some patients it develops into a serious, even, fatal disease.
9. Some, namely macrolide, antibiotic treatment results in reduction and occasionally in disappearance of health problems in some patients, however, these problems later reoccur and gradually deteriorate, while serum levels of specific antibodies remain unchanged.

10. Biological experiments on seronegative guinea pigs discovered production of chlamydial antibodies in a guinea pig receiving food leftovers from the family of the infected breeder.
11. Living standards, nutritional quality, living conditions and the environment of the majority of patients under study is very good.
12. After publishing our findings in various journals, we received a lot of feedback from people primarily from a non-agricultural, urban, population who claimed to be suffering from similar problems. In most of these people, serological tests discovered a seropositive response corresponding to persisting, latent chlamydial infection, with titres of IgA antibodies at 1:20 and higher and IgG antibodies at 1:64 and higher. Those serologically tested for the cHSP 60 were mainly found positive.
13. In the families of people under study, the number of premature deaths, most frequently caused by cancer, serious neurologic diseases, as well as cardiovascular diseases and general health-instability were quite high, affecting one or more members in over 40% of the families, which is significantly higher compared to the general population average.
14. Some of these patients were neurologically examined for a possible influence of unidentified toxins.
15. Patients with persistent problems experienced simultaneously the same, or very similar, subjective troubles relating to specific weather changes (high meteosensitivity).
16. In some patients the latent chlamydial infection persists throughout the whole life, since their childhood, and possibly even since birth. Health problems (and their intensity and scale) gradually become more serious as patients grow older. This information has been confirmed by a significant number of examined families.
17. Table 3 shows evident growth in a large number of diseases and health problems in the breeder's family that did not occur in previous generations.
18. Similar family anamneses recording growth in diseases and health problems in families both involved in as well as remote from agriculture is available for research.
19. The above mentioned findings (plus further research) in a representative sample of people suffering from similar health problems over thirty-one years of research undisputedly prove that the cause of the wide range of observed diseases and health

problems must be identified in persisting, cryptic latent *Chlamydiae* infection (Dr. Stratton uses the term 'stressed infection').

20. The cryptic form of the infection is capable of lifelong persistence in the host organism.

21. Detection of low levels of specific IgA and IgG antibodies is a reliable indicator of persisting infection in the organism. Serological tests for positive heat shock protein cHSP 60 consequently prove such diagnosis.

After the assessment of these, as well as other, no less important, links, we are drawn to a logical conclusion that there has to be one, common primary agent and that other possible negative factors are secondary in nature. At the time of the writing of this study (March 2015) the authors of this study have sufficient information proving this fact. The work on this project so far has spanned almost ten thousand hours. The related health problems were consulted with over a thousand patients, which presents a unique opportunity for objective confirmation of causal relationship between *Chlamydiae* and the respective illnesses. The authors are prepared to make available reliable methodology as well as a list of patients willing to be included in expert scientific research.

Introduction

At present, intensive research into *Chlamydiae* is taking place in almost all medically-developed countries in the world, and there is a vast amount of information about the connection between *Chlamydiae* and some specific diseases and also about various diagnostic methods for *Chlamydiae*. However, so far, we have not discovered an expert study comprehensively researching into causal relationship between a wide range of diseases and health problems and latent *Chlamydiae* infection. A.L. Barron (1988) (24) claims that *Chlamydiae* participate in a far greater number of illnesses than anybody can imagine.

Bazala and Renda (1992) (1, 26, 29) point to a possible connection between latent chlamydial infection and a wide range of diseases in people employed in agriculture and their family members. Nevertheless, the situation is similar in people not involved in agriculture. Balin et al. (2000) (2) demonstrated the presence of *Chlamydia pneumoniae* in patients who

died of Alzheimer's disease. However, Ring and Lyons (2000) (17) examined the brain tissues of fifteen patients who died of Alzheimer's disease and found no DNA sequences specific for *Chlamydia pneumoniae*. Sriram et al. (1999) (18) examined patients with multiple sclerosis and developed *Chlamydia pneumoniae* in a culture in 64% of them and IgG antibodies serologically in 86% cases, whereas Boman et al. (2000) (5) confirmed no detection of *Chlamydia pneumoniae* or its antibodies in the cerebrospinal fluid of patients suffering from multiple sclerosis. Elkin et al. (2000) (6) in their study involving 89 patients who had suffered apoplexy and the same number of healthy people discovered that in people with higher titres of chlamydial IgA antibodies, the danger of possible vascular brain problems is five times higher, regardless of their age, sex or race. The authors consider presence of IgA antibodies as a reliable indicator of chronic chlamydial infection.

Gérard et al. (1998) (7) detected *Chlamydia trachomatis* infection in upper genital tract of infertile female patients. Golden et al. (2000) (8) studied literature available on this topic, yet failed in trying to specify the length of natural *Chlamydia trachomatis* infections. Parks et al. (1997) (14) claim that a majority of untreated symptomatic female patients were culturally negative in twenty days following the first positive detection and therefore can be considered spontaneously cured. On the other hand, Rahm et al. (1986) (16) studied the development of *Chlamydia trachomatis* infection in 109 female patients and ascertained positive cultural detection in 80% of them after ten to twelve weeks. Stenberg and Mardh (1986) (19) studied chlamydial conjunctiva persistent since birth in a six-year-old girl. Beaty et al. (1994) (3) detected persistent *Chlamydia trachomatis* in cell cultures that showed no signs of growth in a 'microbiologically inapparent state', which could reactivate and begin normal proliferation after changes in inhibiting factors. Hahn (1996) (9) sees a connection between asthma and seropositive *Chlamydia pneumoniae*. Kol et al. (1998) (12) demonstrated a connection between chlamydial infections and arteriosclerotic changes in blood vessels. This study also describes mechanism of the infection's transition from its acute stage into its chronic persistent stage characterized by lower MOMP (major outer membrane protein) production and simultaneous growth in HSP 60 production. Zeman et al. (2001) (21) detected high seropositive reaction (57%) using the ELISA anti-LPS *Chlamydia pneumoniae* method in 155 patients with myocardial infarction as opposed to 155 people in the control group. Zeman et al. (2003) (20) showed a statistically highly significant difference in the presence of antichlamydial antibodies in sera of 66 people suffering from unstable *Angina pectoris* as opposed to 112 people in the control group (ELISA anti LPS IgA 65.2% as opposed to

39.2%), with a similar situation noted in the globulin class IgG. Hrubá (2003) (10) points to the high proportional density of *Chlamydiae* in the Czech Republic as well as worldwide, estimating it at 50-80%, and further makes a possible connection between *Chlamydiae* and other diseases, including ovarian cancer and malignancy processes. Pospíšil et al. (1998) (15) point to a significantly higher occurrence of *Chlamydiae* in animal breeders. Ben-Yakov et al. (2002) (4) ascertained titre for *Chlamydiae* antibodies in microimmunofluorescent test (MIF) for acute, repressed and persistent infections, specifying persistent (chronic) infections at IgA>1:20 and IgG 1:64 to 1:256. Medková (2000) (13) mentions the high sensitivity of chlamydial antibody test detection using the ELISA LSP method for serologic screening of arthritis patients. Jarčuška et al (2003) (11) regard macrolide antibiotics, namely *Azithromycin*, as the most effective antichlamydial treatment. Pospíšil (2003) (22) examined heat shock proteins and the lipopolysaccharid gram of negative bacteria, as well as other risk factors and mechanisms of chlamydial infection as risk factors for atherosclerosis, also pointing to a possible connection between *Chlamydiae* and other serious diseases. Věžník, Pospíšil (1997) (23) point out that latent chlamydial infection is very difficult to detect by means of cultivation, as replication of *Chlamydiae* takes place only in a limited number of cells, or what is more, the growth cycle of *Chlamydiae* may be even stopped. Their study deals with subjective health problems in patients suspected of chlamydial infection. The study involved a set of 56 people, aged 24 – 55, with long-term work anamnesis in animal breeding. Another set of 48 people, aged 27 – 43, working outside agriculture were mainly out-patients of the Clinic of Infectious Diseases, Brno, Czech Republic. Both sets of patients underwent clinical, laboratory, and serological testing. The obtained results strongly support the theory of causal relationship between the patients' health problems and latent chlamydial infection. Lozingues et.al. (2015) (25) states possible relationship between *Chlamydia pneumoniae* and vein thrombosis. The study also considers IgA antibodies to be an indicator of chronic chlamydial infection. Me-Hee Park et.al. (2012) (25), Fellerhorff and Wank (2011) (28) notice very high occurrence of *Chlamydiae* infection in patients suffering from schizophrenia. Fellerhorff and Wank show that risk of developing schizophrenia is higher in patients with a specific type of immunogenetic systems. A number of authors point to the relationship between persisting IgA antibodies and occurrence of serious diseases (Hahn et.al. (1996) – asthma, Kasamatsu et.al. (1989) – genital infections, Wollenhaupt et.al. (2000) – arthritis).

After MVDr. Jaroslav Renda's death, I compiled the results of our original study (1, 29) and other findings of long-term research (based on cooperation with MUDr. Polcarova, prof. Pospíšil, and prof. Vežník) to formulate the following fact:

WHY IS HUMAN MEDICINE UNABLE TO DIAGNOSE CAUSES OF A NUMBER OF DISEASES AND HEALTH PROBLEMS THROUGHOUT THE POPULATION?

Almost all people experience, in the course of their lives, a number of diseases. These are most often various infections like influenza, tonsillitis, etc. Such short-term health problems are unpleasant within the period of their occurrence and unless they leave long-lasting negative after-effects, they are soon overcome and forgotten. There are, however, worse cases when people suffer from permanent, long-lasting, cumulative or intensive health problems. Many people, especially with advancing age, complain of long-lasting or even permanent problems complicating their lives to various extents. When evaluating health from the point of view of morbidity and average life expectancy, we can obtain reliable statistical data. Nevertheless, a number of people put emphasis on a category, which is not included in any statistical observation: the suffering of the ill. A healthy, or at least relatively healthy, person may find it difficult to realize the extent of suffering many ill, though seemingly healthy, people experience.

To be able to enjoy a full life, one needs good or at least acceptable health and this makes health an irreplaceable value in the life of an individual and in the whole society as well.

When experts from various fields, like physicians, statisticians and ecologists, discuss the causes of poor health, they usually list major causes of mortality, which are cardiovascular diseases and cancerous tumors. Environmental pollution, bad nutrition, high concentration of heterogeneous and harmful substances in the air and food, improper way of life, genetic, psychic, and psychosomatic factors, geopathogenic zones, Sick Building Syndrome, etc., are presented as the most common factors influencing their occurrence

Some experts (and some politicians in the Czech Republic) claim that people are, to a considerable extent, responsible for their own health, a claim which does not always

correspond with the truth. Certain prominent psychologists even blame bad mental condition (supposedly people just imagine their health problems), which they try to explain by the fact that medical examinations often find no abnormalities in many patients. With the absence of proper and correct diagnosis of real causes of the health problems, the efficiency of their treatment is highly questionable.

I spent a number of years with Dr. Renda conducting research into the issue of the health of people working in agriculture, specifically in animal breeding, and we discovered some very interesting (as yet unique in foreign medical literature) facts that can be directly linked to the issue of the **health of the whole population. Therefore, I would like to point out in this study that the primary and decisive causes of poor health presumably do not reside in the above mentioned expert analyses.**

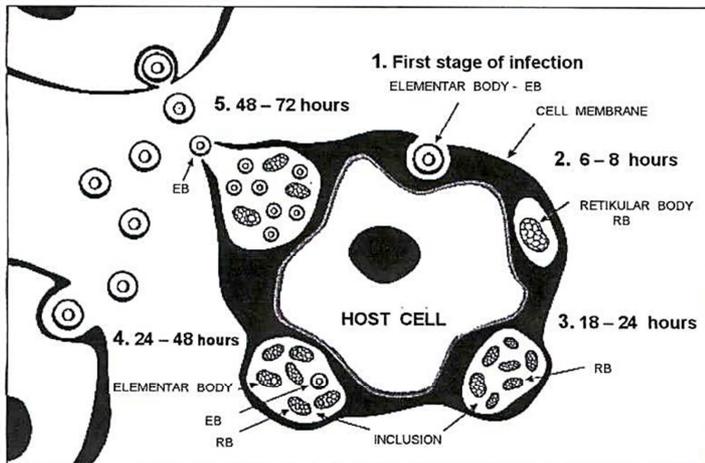
It is quite clear that we cannot reject these expert analyses as they do play some role in the issue of health problems, however, merely in terms of individual influence of these causes on the health of individuals. In cases of people working in agriculture, these influences are somewhat reduced (given factors like adequate movement, a healthier environment, and higher quality of home-grown food products) and yet as our research and other sources show, they suffer from considerably more serious health problems than the rest of the population.

Farmers very often suffer from strikingly similar range of health problems, such as pain and ankylosis, weariness, languor, lethargy, prickling and tingling of the limbs, rheumatism, allergies, etc. Scientific sources world-wide attribute these to the specific influences of agriculture (hard work, airborne dust, draught, various gases in barn air, infections obtained from animals, etc.). Taking into consideration the fact that these problems also occur in the farmers' family members not involved in agriculture, as well as in employees of biological services (animal breeders, veterinarians) and their family members, I started, in 1975, in co-operation with Dr. Renda, to carry out detailed research into this issue. Our time-consuming and demanding research, conducted in cooperation with some of the leading clinical and research institutions of both human and veterinary medicine (the Institute of Hygiene and Epidemiology Prague, the Research Institute of Veterinary Medicine Brno, the Faculty Hospital Brno, the Faculty Hospital Olomouc, University of Veterinary Medicine Košice and others) brought us to the conclusion that the major and primary cause of **health**

problems of people involved in agriculture, as well as others, is latent infection caused by microorganisms of the *Chlamydiae* genus (1), persistent in its cryptic form.

This bacterial infection is transmittable among mammals (including transmission from

animals to humans and vice versa) and the infectious agent is a coccoid micro-organism, 0.2-1.5 µm in size that reproduces itself in the cytoplasm of the infected cell.



BIOLOGICAL CYCLE OF CHLAMYDIAE

The biological cycle of *Chlamydiae* is unique. The infective stage is the elementary body (EB). After penetrating into the host cell, it transforms into a reticular body (RB). The RB then propagates itself inside

the infected host cell and over the course of 24 to 28 hours it transforms itself again into elementary bodies, whose release from the infected cell completes the biological cycle of *Chlamydiae*. The elementary bodies spread into the environment (**high infectivity**) and attack other cells of the host organism.

Taxonomically, the *Chlamydia* genus can be divided into four bacterial species: *Chlamydia trachomatis*, *Chlamydia psittaci*, *Chlamydia pneumonia* and *Chlamydia pecorum*. At present, the attention of experts in human medicine is focused mainly on *Chlamydia pneumoniae*. However, attention should be paid also to *Chlamydia trachomatis* (and to *Chlamydia pecorum*), which, according to our observations persist in an infected organism for the rest of its lifespan and may be even more dangerous than *Chlamydia pneumoniae*. *Chlamydia pecorum*, similarly to *Chlamydia trachomatis* can be the source of acquired infection in people working with animals. This is something that human medicine is currently unable to diagnose. The incidence of *Chlamydia trachomatis* in farm animals and pigeons has been proved by a number of experts (22).

It also seems that the current taxonomic classification is not the very final version. Our research shows high probability of one and the same type of *Chlamydiae* attacking

simultaneously more organic systems. Therefore we need to ask whether the above mentioned classification is suitable and reliable. Physicians predominantly regard *Chlamydiae* as a sexually transmitted disease. Such transmission is evidently common, yet our research shows that in most cases the form of transmission is a **respiratory transmission of a droplet infection, even in its latent stage**, in which several infected cells in the infected individual probably host occasionally reproducing *Chlamydiae*. The following rupture of these cells then releases elementary bodies into the surroundings and the organism of the infected individual. The transmission of infection in its latent stage is made evident by the number of infected families and work parties whose members experience only a partial or no acute stage of the disease.

After their penetration into the host organism, *Chlamydiae* permanently survive and **persist as intracellular parasites in the cells of a number of organic systems** of both humans and animals (16.19), and, in addition to their direct effect on the host cell, they release **endotoxin** (lipopolysaccharide) into the host organism by means of disintegration of elementary bodies. In its cryptic form, they generate neurotoxins in the host organism in the form of heat shock protein (HSP 60) and tumor necrosis factor alpha (TNF-alpha). As the findings of our research suggest, they induce **a number of permanent, most often subjective, painful and generally unpleasant health problems** in humans, often occurring simultaneously.

As early as 1992, we analyzed and published our research into the 27 most common and widely observed health problems (see Tab 1.) in 746 workers from 31 farms around Moravia and East Bohemia and 146 randomly selected members of a control group from the same region, but working outside agriculture. In the group of farmers, the frequency of symptoms per person was 7.1 while in the control group (teachers, police officers, bricklayers, physicians, etc.) it was only 3.0. Occurrence of 21 specific symptoms observed in patients from both groups is presented in table 2.

A rather alarming and unpleasant fact is that out of all the people examined, 70.6% of farmers and 19.5% of non-farmers suffer from more than five of the above mentioned problems. This gives us some idea about what people suffering from six, seven, ten or even more simultaneous health problems must feel like. These alarming facts clearly show that farmers experience poor health conditions and the situation in the rest of the population is far from being ideal as well.

In infected individuals, chlamydial infection can cause both **acute** (less frequent) and **chronic** health problems.

The **acute stage** of this disease most often takes forms of inflammations of the respiratory tract, tonsillitis, inflammation of urogenital organs, genitals and even the prostate gland, conjunctivitis and corneal infections, intestinal problems, infertility, miscarriages, premature birth, ectopic pregnancy and rarely, meningitis or others. Acute cases are induced most frequently by stress factors influencing a latently infected organism, e.g. the common cold, sudden climatic changes, change of residence, nutritional deficiencies or other illness. The issue of acute chlamydial infections in the field of human medicine has been quite thoroughly researched into both in terms of clinical treatment, microbiology and routine therapy. Various papers presented at an international conference on chlamydial infections, which took place in November 2003 in Brno, Czech Republic, as well as recent scientific findings from all over the world envisage further discoveries in this area.

As we discovered in our research, chlamydial infections occur almost exclusively in a **latent form** and have a **chronic, persistent** course **without any clinically-apparent symptoms indicating infectious origin of the disease**. For this reason, almost no physicians take into consideration a possible infectious origin of the illness. If, however, the symptoms of infection are observed, they are usually associated with the occurrence of antibodies to causative agents of other infectious diseases (e.g. boreliosis, toxoplasmosis, cytomegalovirus infections) and the actual infectious agent is generally not detected. This means that even experienced physicians can sometimes diagnose an incorrect infectious causative agent. *Chlamydiae* diagnostic tests are not performed on routine basis and even when they are conducted serologically, results reliability is relatively low (diagnostic of HSP 60 antibodies is very rare) because of the low level of specific IgA antibodies in **the latent stage of the disease** and as a result of insufficiently sensitive diagnostic antigens. Problems associated with latent, chronic and persistent infections have not yet been sufficiently explained. It is only recently that developed countries have begun to pay more attention to this issue, which is demonstrated also by a growing number of scientific studies, in particular on the relationship between *Chlamydiae* and other serious diseases such as cardiovascular diseases (6, 12, 21), heart failure (20), asthma (9), cervical cancer (10, 22), multiple sclerosis (18), rheumatism

(13), Alzheimer's disease (2), schizophrenia (25, 28), and others. "So far, it is not clear if *Chlamydiae* are a causative agent, an accelerator, a cofactor or only an aggravating component of the occurrence of these diseases. However, the direct evidence of *Chlamydiae* in most common lesions suggests that *Chlamydiae* are rather a causative agent than a secondary aggravating component" (Pospisil 22). Recent scientific discoveries from all over the world claim *Chlamydiae* as the most probable cause of a number of serious diseases. Correspondingly, the authors of this study find the results of this study and long-term examination and monitoring of numerous patients **unambiguously** convincing.

Experts often present conflicting beliefs concerning a number of issues connected with chlamydial infections, an example of which is a search for evidence in case of the occurrence of *Chlamydiae* in neural tissues and/or in cerebrospinal fluid (2, 5, 17 and 18). We believe that a majority of neurological diseases are caused by a long-term and permanent **influence of chlamydial toxins** on neural tissue, which is why detecting and diagnosing *Chlamydiae* in tissue as a cause of disease may be found misleading. Unfortunately, at present it is presumably impossible to prove this theory by means of contemporary scientific methods. The above presented hypothesis is supported by a very slow deterioration and intensification of pain problems in affected persons, which can be documented on a number of specific examples.

Persistent chronic infection can occur in the following forms:

1. By gradual emergence of subjective as well as objective health problems, which are described further in the text. These problems can eventually grow into a very high intensity without causing any significant disease. Patients usually suffer from long-lasting severe pain and other unbearable sensations. The number of such suffering patients is large, yet they represent only a tip of the iceberg of people suffering from chlamydial infections.
2. Similarly to point 1, but after some, usually long, time, patients are stricken with a serious or even fatal disease.
3. Patients with no or only insignificant health problems are suddenly stricken with a serious and often incurable disease.
4. Sudden changes of weather conditions (bio-load) may cause unexpected onset of serious, even fatal, health problems in people suffering from long-term infection. This may be attributed to sudden failure in central neural

system, when some of the brain centers send pathological signals to various parts of the body, which, in effect, can lead to failure in respiratory or circulatory system innervations.

Chronic infections are manifested in most cases by a wide range of subjective, and sometimes objective, **long-lasting, recurrent or persistent** problems such as acute rhinitis, excessive production of mucus in both upper and lower parts of the respiratory tract, aphthae, allergies, various skin diseases (dermal aberrances such as warts, nevi, various itchy and painful spots, loss of pigment, lentigos or hair loss) increased tooth sensitivity (sometimes growing into toothache), vertebral column pain, painful and sometimes swollen joints and muscles, rheumatism, dermal itching, numbness and tingling of fingers, toes and entire extremities, muscle spasms, paresis of the extremities, tremor of hands or head, fatigue, somnolence, lethargy, cholecystitis, arrhythmias, coughing, convulsive coughing, sickness, urge to vomit, vomiting, nausea, sudden nausea, dizziness resembling drunkenness associated occasionally also with loss of balance, sore throat, permanent mouth odour, even in children, tingling sensation on the tongue, feeling of a foreign body in the throat, symptoms of onsetting influenza or tonsillitis, high-risk pregnancy, foetal death, prostatic disease, small subcutaneous haemorrhages, feeling of cold and pain in bones, eye itching and lacrimation, mucous secretion of eyes, occasional night transpiration, feeling of hot or cold regardless the ambient temperature, painful sensations in various parts of the body – manifested sometimes as pressure pain, muscle jerking (tics), pain in the whole body, pain in the internal organs, gastro duodenal ulcers, metabolism disturbances (malabsorption of both micro and macro elements of Fe, Mg and vitamins, hypercholesterolemia, hormone production disorders, sugar metabolism disorders) cyst formation in parenchymatous and mucous membrane organs, joint and pleural exudates formation, migrating pains, occasional or persistent increase of body temperature, occasional compulsive defecation, occasional or chronic diarrhoea, peristalsis disorders, headaches, temporary problems with the vocal cords, insomnia, restless legs syndrome, muscle weakness in extremities and other skeletal muscle, a variety of neurological symptoms – sometimes psychiatric in character (nervousness, neurasthenia, sudden aggressiveness, anxiety, feeling of panic, depression) and other problems as well, especially the occurrence of various painful or otherwise unpleasant states. In cases of long-term latent infection there is the danger of an occurrence of painful, pressure sensitive, local spots, **especially on soles of the feet** but also on other body parts. The intensity of sensitivity

in these locally painful areas varies, according to weather changes. Afflicted people can experience various numbers of these symptoms, the quantity and intensity of which is dependent on the character of the respective organism, the length of infection and on specific climatic changes. Not all people carrying the latent infection necessarily suffer from these symptoms, as there are presumably many carriers experiencing no health problems. Yet problems may appear in some of their family members. **The intensity of health problems is not equal to the level of specific antibodies in the blood serum, as some physicians believe.** Most subjective, but also objective, problems are caused by persistent irritation of nerve endings of various organic systems in the body (vegetative neuropathy).

Table 2: Frequency of specific health problems in patients under study:

Group of patients	Number of patients	Occurrence of problems in one person (%)				
		No problems	1 - 5	6 - 10	11 - 17	Average
Animal breeders	746	0	36.5	45.9	17.6	7.1
Others	146	12.3	71.2	13.0	3.5	3.0

Note: 746 farmers from 31 farms in Moravia and East Bohemia and 146 people of non-agricultural professions.

The course of the disease in afflicted families:

In newborns, infections may sporadically occur in the ocular region or in the lower part of the respiratory tract. Problems of a more serious character may rarely occur as well. Babies generally seem to be healthy but sometimes they are restless, cry, and experience sleep and appetite disturbances. These symptoms occur mostly in connection with weather changes, i.e. as a result of increased bioclimatic stress.

In later childhood, these children can suffer from various allergies (atopic eczema, normal eczema), sporadically even small haematomas, sudden body temperature increase, or subfebrilia. In periods of changing weather, they may show symptoms of fatigue, which is often interpreted as child laziness, apathy, sudden sickness or vomiting, sudden diarrhoea, sudden non-infectious rhinitis, sleep disorders (difficulty in falling asleep, frequent awakening or restless sleep, occasionally creaking teeth during sleep), headaches, and bed-wetting (*enuresis nocturna*) until an even more advanced age; sometimes we can also observe anorexia, sporadically even swelling of lymphatic nodes, hard nodes of a pea or bean size (most frequently on the neck) as well as some other, especially minor nervous problems. Infected children also often suffer from neurological abnormalities such as light brain dysfunctions (LBD), manifested as reduced ability to concentrate, behavior changes and disorders, restlessness, moodiness, torpidity, yet in some patients also hyperactivity connected with Attention Deficit Hyperactivity Disorder (ADHD) and, consequently, learning problems. From time to time, children may also complain that they suffer from pain in various parts of the body (abdomen, eyes, limbs, or neck) and such conditions are usually also associated with climatic changes, i.e. with the degree of bioclimatic stress. As a rule, these conditions occur suddenly and also disappear very quickly so that the parents mostly do not pay much attention to them. From the long-term point of view, these children seem to be healthy. In rare cases, it is also possible that the infected children show, similarly to some adults, symptoms of other problems including the occurrence of some very serious or fatal diseases (leukaemia, diabetes, cancer, or multiple sclerosis). Some children also suffer from markedly frequent occurrence of various infections (of the lower part of the respiratory tract, and, sporadically, also of the urinary tract). Such afflicted children can show signs of moodiness, namely in response to weather changes. In some cases, this infection can have negative influence on the mental and physical development of the child.

In later adolescence, some subjective, weather-related health problems may occur, such as pain in the back and limbs, fatigue, mood swings and other problems comparable to adult patients. Allergies are also more frequent, especially skin eczemas.

In adults, the onset of especially subjective problems is very slow and the problems increase markedly depending on the length of the infection, i.e. with the advancing age of the patient. Infected people show not only the complete scale of both subjective and objective problems mentioned above but especially a number of **nervous problems**, for example distress and anxiety; depressions (which can be even cause of suicide when accompanied by severe subjective problems), moodiness, nervousness that can sometimes turn into irritability, apathy, insomnia, tinnitus, stabbing pain in the muscles, myoclonia and twitching in other body parts, lancinating pain from the spine to various parts of body, tremor of hands and head and sometimes also short-term sight disorders. Patients can also suffer from increased muscular tonus in the extremities and back, back problems and pain as well as numbness and tingling of fingers and toes. Pain in the spinal area is a very frequent symptom of latent chlamydial infection. Some patients may show various (for some physicians unexplainable) problems such as itching or even skin pain, aftertaste, feeling of cold and itching in the bones that sometimes changes into local pain in the bones (supposedly resulting from periostitis), occurrence of local, pressure-sensitive pain spots in various parts of the body, sudden feelings of cold or warmth not relevant to ambient temperature, chapping of lips without an increase in body temperature and some other problems. Some patients may show symptoms of various unpleasant, especially aching conditions that may move from one place to another. It is obvious that the occurrence of these ‘moving pains’ as well as the majority of subjective problems results from a long-term irritation of nerves by toxins produced by *Chlamydiae*. *Chlamydiae*-generated toxins cause above all irritations (pain, spasm, itching, burning, tingling and numbness) of nerve endings. Some long-suffering patients sometimes claim experiencing “weird states”, which they fail to describe precisely. These seem to be combinations of very unpleasant and irritating sensations; such as feeling of weakness, nausea, urge to vomit, defocused thinking (thinking seems to be blurred and chaotic with thoughts running away – brain fog). This are accompanied by memory disorders and various painful states. Patients suffering from these symptoms claim loss of interest in life and a wish not to live. Disorders of nerve endings innervations in infected organs cause a wide range of diseases of respective organic systems. Irritated nerves are therefore very sensitive to even very minor climatic changes (and increased biological stresses) so that the intensity of subjective problems changes depending on the weather. The symptom of ‘moving pain’ can

be explained by specific effects of varying climatic changes on irritated nerves of respective individual body organs. This is made evident by the fact that a number of such afflicted patients experience onset of the same health problems at the same time. Elderly people often suffer from serious rheumatic problems in their joints, and even small finger joints, such as swelling and finger deformations. Some patients presumably suffer from this infection since their childhood and often claim that their parents suffered from similar health problems.

In cases of long-term latent chlamydial infection, the irritation of nerves, caused by chlamydial toxins, can result in the occurrence of a wide range of health problems (including the aforementioned), for instance severe pains in the lying position (patients are usually woken up by pain or numbness of limbs and must shift to an alleviating position). In major weather changes patients can suffer from sudden health problems (diarrhoea, sickness, vomiting, weariness, weakness or temporary increase in body temperature), which is often diagnosed as “intestinal infection”. These problems do not usually last long (0.5 – 3 days). In some patients, the infection can result in functional failures of various organs and the occurrence of serious diseases during their productive age. **Infected people and their family members have, beyond any doubt, a more frequent record of serious diseases,** such as cardiovascular diseases (vascular incidents, conditions resembling angina pectoris, heart pain, functional disturbances and sudden heart attacks as well as respiratory and circulatory failures caused by enervation disorders), diabetes, asthma, cancer (mostly prostate gland, testicles, large intestine, liver, pancreas, kidneys, lungs, mammary gland, brain, lymph gland), **leukaemia**, blood manufacturing disturbances, psoriasis, periostitis, tendonitis, arthrosis and arthritis, gout, neuritis and phlebitis, multiple sclerosis, mononucleosis, urogenital infections, functional disorders of the endocrinal glands (thyroid gland disorder and enlargement), chronic fatigue syndrome, Alzheimer’s disease, Parkinson’s disease, epilepsy, schizophrenia, serious chronic nervous diseases, sudden infant death syndrome, psychiatric diseases and even some other serious diseases cannot be excluded. It is quite interesting that inflammation and cancer very often appear in organs that *Chlamydiae* have affinity with (parenchymatous organs and organs with mucous membrane). Possible accelerators of cancer in these organs could be found in appearance and persistence of small, disseminated centers of infection originating in replication of *Chlamydiae* in the latent stage of the disease (23). Another factor affecting development of cancer may be cell mutations and chromosomal aberrations, which possibly develop due to long-term influence of chlamydial toxins in the organism. More

frequent occurrences of genetically determined disorders in some of the observed families (with no previous anamnestic record of such disorders) support this argument. **It is my conviction that a detailed, expert examination of latent chlamydial infection could reveal the causes of a number of very serious diseases and also change our attitudes towards the origins of genetically determined diseases** (e.g. cancer, diabetes, asthma, allergy, atopic eczema, and some others), in which chlamydial infections are supposedly transmitted to children from their parents and consequently *Chlamydiae* initiate in the children the same diseases their parents suffer from (the author can present evidence for this obtained from several families). Physicians far too often stress genetic aspects of such diseases, despite the fact that in two and even more generations of ancestors in both paternal and maternal lines no evidence of these diseases was recorded. Another, frequently ignored, fact is that in some families the father and the mother suffer from the same health problems as their children, although their own parents and ancestors did not experience the same. Our research included, among others, also a family in which six members were diagnosed with cancer, one child with leukaemia and another member with a serious heart disease. The family ancestry line showed no record of these diseases. In our research, we have worked with a number of similarly afflicted families, where family members suffer from cancer and other serious diseases. This can be caused by negative influence of *Chlamydiae*, which can lead to frequent DNA damage, specifically incorrect DNA doubling in cell division. This can be a cause of a more frequent occurrence of cancer and other serious diseases, which are often attributed to genetic dispositions. Influence of genetics can be seen in predisposition to insufficient functioning of repair mechanisms in damaged DNA. We must also consider the possible negative effect of a latent chlamydial infection on the reproductive abilities of humans and animals. Thorough research could bring very interesting scientific findings in the field of reproduction (7, 16).

With advancing age, people suffering from permanent latent chlamydial infection become increasingly sensitive to even very small climatic changes and in an old age varying climatic changes can induce in them unpleasant, painful and even severely painful health problems. Some of these people become permanently ill, often suffering from long-lasting severe pains and, as we might suspect, it is **not their biological age, but persistent chlamydial infection that is the cause of these problems**. These people seem to be quite numerous in the Czech Republic, given the high occurrence of seropositive individuals in the group of farmers involved in our study (1) as well as in the rest of the population. Recent international scientific statistical data involving global population seem to support this argument. Findings

similar to ours can be obtained also from other authors researching into *Chlamydiae* even beyond the range of agriculture – involved people (10, 15).

This theory is based on the results of my work with the late MVDr. Jaroslav Renda in 1992 (1, 29) and on more than forty years of research into the development of health conditions of over one thousand people and several families suffering from persistent latent chlamydial infection. I further claim that even sound clinical experts in human medicine are not fully aware of a possible causal connection between these problems and *Chlamydiae*, despite the fact that at present, a limited number of physicians are well **informed about the issue of *Chlamydia* in their respective branches of medicine**. This includes in particular rheumatologists, diabetes specialists and internists. However, *Chlamydiae* significantly influence all branches of human medicine, in my opinion especially rheumatology, neurology, psychiatry, cardiology, orthopaedics, haematology, oncology, and others. Therefore, it is essential to examine this problem from a complex point of view and not only with respect to a selected medical branch.

Our results and other data (see literature mentioned in this paper) indicate that in the rural Czech population, the degree of infestation is high, especially among people working in animal breeding (approximately 50-90% or even more) and that in **other population groups it may be at the level of 50% or higher** (10, 15). The findings of our research warn against a possible increase in the problem in future generations. This warning should be a signal for immediate and intensive attention to be paid to this issue on the part of expert research teams in both human and veterinary medicine as there is nothing more valuable than good health. Chlamydial infection can attack people of any age, even though, due to their profession, farmers, and especially animal breeders, are most likely to be at risk. The author has amassed interesting information and facts about serious health problems and premature deaths of human and veterinary physicians, scientists, artists and politicians, which can be attributed to *Chlamydia*. This issue was personally discussed with some of the patients and most of them approved of the theory. In future generations, the number of afflicted people may increase and people living to an advanced age might suffer because of latent chlamydial infections.

Effects of *Chlamydia* can be characterized as symptoms of different, often inexplicable diseases and painful conditions. It seems that *Chlamydiae* presumably play a much more important role in the health status of our population than many well-trained experts imagine and it cannot be excluded that *Chlamydiae* play a **primary role** in the health of our

population and **all other factors are only of secondary importance. The authors of this study fully agree with A.L. Barron (24) who claims that *Chlamydiae* participate in a far greater number of illnesses than anybody can imagine.** Namely oncologists, neurologists, psychiatrists and rheumatologists might be surprised to see how many of the diseases in their respective fields of expertise will be attributed to *Chlamydiae*. *Chlamydiae* can be, without exaggeration, called “**an infectious agent causing a great number of diseases and painful and unpleasant health problems in a large amount of human population**”. Due to *Chlamydiae*, some afflicted people can experience long-term severe suffering, which may turn their lives into literally ‘hell on Earth’, especially with advancing age. The maliciousness of *Chlamydiae* lies in their nearly exclusively latent influence on human organism, i.e. in the fact that the course of the disease does not indicate any symptoms of infection. The onset of this illness is mostly very slow, lengthy and inconspicuous, the infected people may show symptoms of fatigue, weariness, slight pain in the back or joints, eczema, or other, slowly developing, illnesses. Replications of *Chlamydiae* in a limited number of cells in cases of persistence can probably cause the occurrence of very small centers of inflammation disseminated in several organs. These centers can function as sources of subsequent serious diseases, for instance cancer. The occurrence of these small, local centers possibly **does not produce significant increase of serum antibodies.** *Chlamydiae* presumably have an intense allergic influence on the organism, which then becomes very sensitive to certain outer as well as inner stimulants (dust, pollen, sunshine, gluten, lactoprotein, some kinds of food or fruit, and others). This eventually gives rise to allergic diseases. This can be documented on examples of families in which there had been no records of allergic diseases and allergy only appeared after the occurrence of the above mentioned subjective health problems in one or more of the family members. We have also found great probability of nerve endings irritations in end organs causing functional disorders of these organs, including hypersensitivity. The development of this disease usually takes years; however, at times latent infection can break out without any prior symptoms into one of the serious diseases mentioned above. Most of the problems and the course of the disease in the latent stage are strikingly similar in practically all infected people. Even an ordinary medical anamnesis of such afflicted people must reveal that the causes of the diseases must be identical. *Chlamydiae* seem to be a cause of **a number of premature deaths and premature invalidity of many people**, often people in the prime of their lives. In addition to this, their effects, such as **accumulation of their primary effects on cells, intracellular parasitism, production of chlamydial toxins (HSP 60, TNF-alpha, and LPS) and their permanent**

irritation of nerves, hypersensitivity of the infected organism, lasting autoimmune effects of antibodies, decrease in production of major outer membrane protein MOMP and concurrent increase in production of heat shock protein (HSP 60), ability of *Chlamydiae* to penetrate cells in the immunity system (macrophages), release of macrophage cytokine TNF-alpha (tumor necrosis factor), direct invasion into vascular wall as well as other influences result in the occurrence of a wide range of diseases that are associated with long-term and severe problems, mostly very painful and intolerable. The above mentioned negative effects of *Chlamydiae* on the organism have recently been described by a number of experts (1, 13, 20, 21, 22, 23). There can be but one logical conclusion and it is that a **pathogen with so many negative effects must inevitably be a cause of numerous diseases**. Any contrary opinion would represent a denial of expert biological and physiological rules defining the influence of pathogenic microorganisms on health of humans and animals as well as it would degrade the whole field of infectiology. When we put together our practical findings about health problems of people suffering from persistent chlamydial infection and the above mentioned, scientifically proved, influences, we must inevitably get to an unambiguous conclusion that *Chlamydiae* must be a cause of the whole scale of diseases. Only very naive and self-centred experts, blind in their ignorance and convinced of their own infallibility can believe otherwise. I am of the opinion, that scientific research into this problem and possible treatment could result in prolonged active life and life expectancy of the population. **We can assume that as a consequence of serious diseases caused by *Chlamydiae*, several thousand people in the Czech Republic die prematurely**. Without proper solution to this problem all expert efforts to prolong life expectancy will be useless.

At present, **diagnosis of the acute stage** of the disease is relatively precise using direct serological detection of *Chlamydiae*. Nevertheless, **direct detection of *Chlamydiae* for the diagnosis of persistent latent infection is somewhat questionable**. Diagnosis at this stage is very difficult because replication of *Chlamydiae* in a limited number of cells or even termination of *Chlamydiae* growth cycle (23, 3) make it impossible to obtain enough elementary bodies for detection. Therefore, latent cryptic form of persistent chlamydial infection is almost impossible to prove by means of cultivation tests, which applies also to direct detection of chlamydial DNA. So far, our research has included three patients in whom *Chlamydiae* were detected in latent stage with low (negative) serological response using the direct PCR method. **Patients with potential or expected chlamydial infection must be**

tested for *Chlamydiae* by means of direct PCR method upon every, even isolated occurrence of acute or subacute inflammation of organic systems susceptible to chlamydial infections (eye, conjunctiva, urogenital organs, lungs prostate gland or nasopharynx).

As I mentioned earlier, **serological diagnosis of chronic, persistent latent infection is often inaccurate**, due to a rather low to very low level of specific antibodies and the lack of their dynamics (increase or decrease) in a majority of patients. Many physicians and laboratory technicians are **wrong in their assumptions that chlamydial infection must produce high and dynamic serologic level of antibodies. This, however, regards only acute or subacute infections.** In the Czech Republic, the seropositive level of antibodies is set at values corresponding to acute or subacute infection. Therefore, many patients tested for *Chlamydiae* commonly receive serologically negative test results. In such a case, the laboratory findings, due to insufficient awareness of this problem, result in a negative, though unintentional, effect. **Even low level of antibodies, together with the evaluation of clinical symptoms of the disease can signal a possible threat of chlamydial infection.** The author of this study is able and prepared to present expert substantiation of this claim as well conduct a practical laboratory test proving the occurrence of chlamydial infection in healthy laboratory animals (guinea pig, rabbit) in several families with low (negative or slightly positive) level of chlamydial antibodies. We must also take into consideration the fact that individual kinds of *Chlamydiae* have one and the same specific generic antigen (LPS) localized on the outer chlamydial membrane and therefore individual kinds of *Chlamydiae* can cross react, which can result in low or negative levels of diagnosed chlamydial antibodies. **Because of a possible diagnostic inexactness, serology can be considered as the most efficient diagnostic method in the latent stage of the disease.** Serological tests seem to be the most reliable form of diagnostics, provided that low levels of specific IgA antibodies from 1:10 (0.1) and persistent IgG antibodies from 1:20 (0.2) are also considered as a reliable indicator of persistent chlamydial infection. At present, a number of expert studies claim that the presence of IgA antibodies indeed is a reliable indicator of persistent infection (6, 27, and others). Further serological tests for HSP 60 significantly increase reliability of such diagnostics. According to latest scientific findings, diagnosis of chronic infections is conditioned by detection of **heat shock protein (HSP 60)** antibodies and major outer membrane protein (MOMP) antibodies. Antichlamydial HSP-60 and MOMP antibodies and the assessment of their values (lower MOMP and higher HSP-60) seem to be a very sensitive indicator of

persistent infection. Unfortunately, in the Czech Republic, this sensitive method is not yet used in common diagnostics, due to lack of knowledge and interest on the side of experts in this field. This hampers correct diagnosis of chronic persistent chlamydial infection and consequent objectification of the cause of health problems in a great number of afflicted people. Researchers from Brno, Czech Republic (22) claim that the credibility of the examination increases by means of the simultaneous use of two diagnostic methods. Our examinations discovered differences in the estimation of the level of specific antibodies in the same samples of blood serum analysed in different serological laboratories using different methods and different batches of diagnostic antigens. The comparison of serological test results obtained from different methods using the same sera suggests that **the complement fixation reaction method in the diagnosis of latent chlamydial infection is very inaccurate and inconvenient.** This method **seems to be convenient only in cases of extensive acute inflammations.** For the above mentioned reasons, **it is necessary to consider the fact that in serological examination, even a very low level of specific antibodies may be directly associated with a persistent infection.** According to data published by researchers from Israel (4), **titres of IgA 1:20 and higher and of IgG 1:64-256** can be considered as indicators of **chronic persistent infection**; which corresponds to our findings. In a small number of infected people no seroantibodies were found in spite of the fact that in their relatives these antibodies were detected. **Some manufacturers of diagnostic antigens (MEDAC Hamburg) also stress the possibility of the absence of serum chlamydial antibodies.** It is also necessary to take into consideration the fact that in case of **latent, persisting infection the level of specific antibodies is relatively stable from a long-term point of view, without any dynamic ups or downs and that it is only during the acute stage of the disease when the level of specific antibodies rises and then again it gradually descends to its original level.**

As far as therapy is concerned, many experts from both human and veterinary medicine believe (11) that *Chlamydiae* can be killed by means of antibiotics, macrolide antibiotics in particular. Our research shows that in many patients this is not true as these antibiotics seem to exercise only an inhibitory effect in the acute stage of the disease, but fail to eliminate the cryptic form of *Chlamydiae*. This is evident from the recurrence of the disease, when patients experience only temporary relief and improvement of their health. Therefore, *Chlamydiae* may permanently persist in the infected organism, creating what might be termed a state of

'infectious immunity' in which the immunity process limits reproduction of microorganisms, but is unable to secure their total elimination, thus creating the latent stage of the disease (23). *Chlamydiae* then persist in their cryptic (as Dr. Stratton calls it 'stressed') form as intracellular parasites. This can be characterized as a steady state with rather low or low levels of specific antibodies in the host organism. This prevents the onset of the acute stage of the disease, but allows ***Chlamydiae* to persist and parasitize in the infected organism**. In rare cases, as a result of certain inhibition influences on the organism, reactivation of the latent stage into an active or sub-active stage can sometimes appear.

Patients hosting latent infection often repeatedly undergo a number of various examinations by physicians as well as healers, who fail to identify the actual infectious agent. Physicians mostly attribute the problems and symptoms to spinal modifications, stress, psyche, influence of free radicals, influence of geopathogenic zones, immunity disorders, sometimes even to a lack of magnesium in the organism, and in elderly patients to biological age. Such beliefs can be easily disproved by expert analysis. Immunity disorders can be attributed directly to *Chlamydiae*, which are able, in some cases, to invade the cells of the immunity system, namely macrophages (20). The influence of geopathogenic zones can be similarly disproved by a simple argument that members of some of the afflicted families live in different places, even in different countries, and yet they suffer from identical health problems. All the other, above mentioned, potential causes of problems, including borelia infection, can also be disproved. **Therefore, the treatment is merely symptomatic**, without relevant and long-lasting therapeutic effect and almost always with recurrence of the problems. What is more, some physicians, when failing to identify the real cause of the patients' problems, which happens quite often, try to persuade the patients that the problems are just imaginary, despite the patients claiming severe pains (**hypochondriac of patients**). Such treatment of the patients must be denounced as tragic, irresponsible and inhumane.

At present, the latest findings record significant improvement in patients suffering from severe health problems as well as signs of first successful treatment of this disease by means of long-term combined application of specific antibiotics and some other medications in a special regime. Medications used in this experiment were for example chemotherapeutic Entizol (**Metronidazol**) and **antituberculous drugs (Rifampicin, Isoniazid)**. Further

information can be found at www.cpnhelp.org – this treatment is based on the project of Dr. Stratton and his team at Vanderbilt University, USA as well as on other projects. The results of the research into the possible treatment of the disease have been patented and are available at www.freepatentsonline.com or at www.immed.org. In the Czech Republic, several patients are being treated by means of this new method and provisional results are very positive. However, no reliable information about successful and permanent cure of the disease has been presented yet. It is, at the same time, quite difficult to define successful and permanent cure. **Current problem dwells in the availability of this specific treatment**, which is often rejected by most physicians due to their ignorance of the issue. These new methods should be carefully clinically verified also by experts in the Czech Republic. Still, even a successfully cured patient remains in danger of reinfecting from other, infected, family members who did not undergo the same treatment (known as ‘Ping-Pong’ reinfection effect). **Additionally, treatment of children remains a great problem**, as they cannot be exposed to such long-term therapy. For the above mentioned reasons, the long-term, combined treatment can be considered a method of choice suitable for some patients. **Our task for the future will be to find another, less radical, but effective treatment.** The objective, in cases of serious health problems, is to carefully **analyze potential influence of *Chlamydiae* on the respective disease and consequently apply long-term specific treatment focusing on all developmental stages of this pathogen.** Currently used **standard single antibiotic treatment fails to secure total elimination of the pathogen, even if used longer or repeatedly**, and therefore achieves only occasional short-term effect. Many physicians and medical institutions are wrong in their assumptions and beliefs in the **efficiency of macrolide, tetracycline, or chinolon treatment. Such treatment is efficient only in acute chlamydial infections** for the elimination of elementary bodies. Further information about the issue of *Chlamydiae* can be found at www.chlamydie.info.

Attachment

Table 1: Anamnestic data about specific health problems of farmers and about occurrence of the same health problems in a control group of non-farmers

Health problem	Occurrence among 746 farmers (%)	Occurrence among 146 non-farmers (%)
Pain in joints and spine	74.9	33.6
Coughing	74.1	12.3
Fatigue, somnolence, torpidity	61.1	34.1
Headache	53.1	25.3
Itching of skin and eyes	44.8	10.9
Occasional influenza and tonsillitis	43.4	21.2
Tingling and numbness of extremities	41.9	15.1
Rheumatism	41.7	15.7
Respiratory problems	33.0	10.3
Eczemas, allergy	26.9	11.6
Tonsillitis and/or influenza-like states	26.8	4.8
Stiffness and swelling of joints	23.3	4.8
Night perspiration	22.9	7.5
Conjunctivitis	16.3	10.3
Neuritis, phlebitis	15.4	3.4
Dizziness, drunkenness-like states	13.9	5.5
Kidney and urinary tract infections	13.4	9.6
Arrhythmia	13.1	5.5
Frequent increased body temperatures	11.4	7.5
Abortion, risk pregnancy	11.2	4.8
Nausea	10.7	3.4
Frequent compulsive defecation	3.7	0
Asthma	2.4	0
Diabetes	2.3	1.4
Gout	0.8	0
Handicapped children	0.7	0
Similar disorders in the family	24.5	8.2

Some of our research findings and related aspects dealing with mechanisms of cryptic chlamydial infection.

1. We are convinced that chronic persistent latent chlamydial infections are a cause of a wide spectrum of human diseases. The spectrum ranges from short-term to serious and even terminal diseases. It is highly probable that a significant number, possibly a majority, of chronic persistent human diseases have direct causal relationship with latent chlamydial infection (1, 20, 24, 15, 23, 24, 28). People with long-term chronic persistent chlamydial infection usually suffer from several simultaneously occurring problems. These are most commonly various unpleasant health problems of subjective nature, but also concurrent disorders in several organic systems, such as urogenital, pulmonary, ocular and nervous systems. Outcomes of our long-term research into the course of this disease prove that a number of afflicted people suffer from severe physical pain and we have even recorded instances of premature death.

2. The course of *Chlamydia*-inflicted diseases exacerbates with increasing age due to the infection's long-term effect on the host organism and deterioration of the immune system, namely in elderly population. Weakening or even failure of the immune system in young people can result from the fact that the bacteria are able to penetrate into the cells of the immune system – macrophages (12), but it can also be caused by the cumulative influence of highly pathogen factors, especially the inflammatory heat shock protein HSP 60, the proinflammatorycytotoxic cytokine TNF alpha, lasting autoimmune influence of chlamydial antibodies, and direct influence of *Chlamydiae* on infected cells (by forming small, active disseminated nidi on mucouse membrane and paremchymal tissues. Pathogen chlamydial factors probably exercise causal relationship with development of cell mutations and chromosomal aberrations, as well as homeostasis disorders (disorders in cell metabolism). This has direct connection with the origin of serious, namely chronic, diseases, such as cancer, leukaemia, diabetes, rheumatism, multiple sclerosis, asthma, Crohn's, Alzheimer's, Parkinson's and Menier's diseases, (probable development of ALS), epilepsy, schizophrenia, cardiovascular diseases and a number of other diseases and health problems.

3. In people suffering from latent infection, the disease onset is very slow. The first symptoms - pain in the back or joints, headache, allergy, frequent non-infectious cold, skin irritation, etc. do not indicate an infectious disease. Various subjective health problems gradually become more intensive and eventually they cause very unpleasant feelings and even severe pain. As the causes of these symptoms are very difficult to diagnose, they are often attributed to stress factors (psychosomatic origin diseases). Occasional claims that it is impossible for the *Chlamydiae* to cause the above mentioned health problems only in some of the many infected people (given the widespread nature of the infection) must be deemed as misleading and unprofessional. Each human being represents a biological individuality with a unique immunogenetic disposition and any infected person can show symptoms of or suffer from the above mentioned health problems. A potential onset and course of a disease is determined by the very interaction between micro and microorganisms in an individual, which can be regarded as the determining factor. In infected people with good immunity, the onset can be delayed. The above mentioned factors of genetic disposition, environmental factors,

lifestyle, etc. also play an important role. The findings of our research clearly show that the type of disease caused by latent chlamydial infection is determined predominantly by the immunogenetic disposition of the infected individual and the length of the organism's exposure to chlamydial infection. *Chlamydiae* thus represent a ticking time bomb in each, even clinically healthy-seeming organism suffering from a hidden infection. On the other hand, in people with weakened immunity, the disease can strike suddenly and dramatically. Therefore, it is essential, especially in cases of serious diseases, to diagnose the pathogens and start specific intensive treatment. Otherwise, the treatment prognosis can be rather unfavourable. Our research revealed that in observed infected families with good immunity (based on very good health in previous generations, prior to acquiring chlamydial infection), the latent form of infection only very sporadically develops into its acute stage. This can be interpreted as a proof of cryptic persistence of *Chlamydiae* in people with good immunity, who may also suffer from various, mainly subjective, health problems, which can eventually develop into more serious health problems. The occurrence of very serious diseases in people with good immunity is sporadic.

4. The infection spreads also in its latent stage. This spread is typical in frequent personal contact, e.g. family, work and school. The first symptoms usually appear with sudden weather changes (based on the intensity of biological burden). In such cases, more individuals within the infected group suffer from the same or very similar health problems – nausea, weariness, diarrhoea, vomiting, high temperature, headache, etc. These problems usually appear and disappear very quickly, lasting between 0.5-2 days. They are often attributed to alimentary infection, intestinal virosis, etc.

5. The real cause of such a wide spectrum of diseases is most probably a cumulative influence of several pathogens. These originate from a long-term and persistent influence of *Chlamydiae* on the organism of the infected person. Scientific research (12, 22 and others) emphasises namely a long-lasting production of chlamydial LPS endotoxins, inflammatory heat shock protein (HSP 60) and penetration of the bacteria into macrophages and simultaneous production of proinflammatory cytotoxic cytokines tumour necrosis factor (TNF) alpha. Another possible neurotoxic factor caused by the *Chlamydiae* can be a neurotoxic amino acid Homocysteine. The *Chlamydiae* can cause disorders in the absorption of the vitamin B group (namely folic acid). In response to the deficit of these vitamins, the organism suffers from insufficient Homocysteine degradation and consequent increase of its level in the blood. Homocysteine then accumulates in the blood system and starts to exercise its pathologically intoxicating chronic influence with all possible consequences, causing a number of serious, namely neurotoxic diseases. Other factors include autoimmune influence of antibodies, allergization of the organism, direct influence of *Chlamydiae* on infected cells and other possible negative influences.

6. It is probable that due to the cumulative and long-term effect of these negative pathogen factors, most infected people gradually develop firstly just subjective and later visibly serious and excruciating health problems. Given the current insufficient knowledge about the role and influence of *Chlamydiae*, these health problems are very difficult to diagnose and most diagnoses state mental discomfort, in elderly patients they are attributed to advanced age.

Subjective health problems deteriorate and various forms of diseases, especially serious ones, appear with a rather long (or long) delay following the infection acquisition. The length of the delay is determined by individual aspects of the organism, and can range from years to decades. In some infected people, the onset of a disease can be relatively prompt, namely in people suffering from serious diseases like cardiovascular disorders, asthma, cancer, diabetes, leukaemia, fibromyalgia, arthrosis and arthritis, spasms in both skeletal and involuntary muscles, tinnitus, psychotic attacks, epilepsy, etc.

7. Research into disease course in a large number of patients provides evidence of a very negative, toxic and aggravating influence of the above mentioned pathogen factors, e.g. LPS, HSP 60 and TNF alpha on the nervous system of an infected person. This, combined with metabolic disorders, results in high nerve irritability, especially in nerve endings, which is demonstrated by unpleasant bodily sensations – pain, sore sensations, itching, stinging and prickling pain, tingling, numbness, muscle jerking, depressions, head and hand tremor (sometimes tremor of the whole body), sleep disorders, fibromyalgia, chronic weakness, stress and other neurological problems. Chlamydial neurotoxins can activate certain parts of the brain, thus causing the development of various mental disorders and diseases. Sudden changes in weather conditions (bio-load intensity) may result in the brain sending unexpected, uncontrolled pathological and physiological impulses that, in effect, trigger the onset of serious health problems. Some of the observed patients admit that at certain periods they enjoy relatively good health, only to, unexpectedly and without any obvious cause, experience sudden deterioration of their health. This indicates that a central neuron system exposed to a long-term influence of chlamydial toxins starts to send pathological signals in response to sudden increase in bio-load. This then affects the intensity and variability of health problems in the infected patients, as well as their behavior. Such observations are typical namely of people suffering from epilepsy, schizophrenia, rheumatism, and a number of other, especially mental, diseases.

This pathologic mechanism, which modern medicine fails to diagnose, is an essential cause of a number of health problems in infected people.

8. The influence of the above mentioned factors on the nervous system results in the occurrence of very unpleasant subjective sensations, and also in disorders in nerve endings, innervation of various organic systems and consequent disease of these organs. In exceptional cases, the situation can develop into nerve paresis and concurrent impairment of the respective organic system (e.g. impaired hearing or sight, loss of taste, swallowing problems, etc.). The impairment and diseases of these organic systems can be a result of either an inflammation caused by primary or secondary influence of *Chlamydiae*, or the above mentioned innervation problems. A typical example can be one of the forms of diabetes origin, as well as a number of hormonal disorders. The above mentioned factors are probably responsible for negative effects on the whole range of cell functions (12).

9. We cannot exclude the possibility that the LPS, HSP 60 and namely TNF alpha pathogen factors may cause increased capillary permeability and fragility. This can lead to disruption of hematoencephalic barrier and allowing brain arteries permeability for other than

required brain molecules, which in consequence can result in various neurological disorders as well as brain and nerve diseases. Occasional occurrence of subcutaneous bleeds in some infected people and families may indicate capillary fragility.

Persistent influence of chlamydial pathogen factors (toxins and antibodies) is the most probable cause of most of mental diseases and in some patients (with a specific type of immunogenetic disposition) it possibly even leads to degenerative brain disorders and consequent onset of a wide range of diseases, such as Alzheimer's disease (the mechanisms of *Chlamydiae* infection might develop ALS).

It is highly probable that the above mentioned pathogen factors may act as biological mutagens, directly influencing cell division mutations and chromosomal aberrations in the course of intrauterine development of an individual. This claim is strongly supported by occurrence of some genetically determined disorders in families with no previous anamnestic record of such disorders. Some of these families record even occurrence of Down Syndrome, homosexuality, and left-handedness.

10. Chronic persistent latent infections also cause a wide range of serious autoimmune diseases. They increase allergization of organism and a significant number of infected people, namely children, may develop allergy to various stimuli (dust, pollen, sunshine, gluten, milk protein, various kinds of fruit, etc.). *Chlamydiae* seem to be the predominant cause of these diseases.

11. Our long-term research into disease course in a substantial number of people (over 1,000, including whole *Chlamydiae* infected families and long-term repeated testing for anti-*Chlamydia* IgA, IgG and IgM antibodies and recently also HSP 60 antibodies) reveals lifelong chronic persistence of a latent chlamydial infection in an infected organism, despite repeated standard short-term antibiotic treatment. Therefore, the infection persists since its acquisition in the course of the intrauterine development or later in the course of lifetime. Infected children suffer from various, mainly unspecific, health problems since early childhood and some of them are vulnerable to frequent infections. Infection persistence is caused by penetration of *Chlamydiae* into macrophages and their transformation into a cryptic form as non-replicating (sleeping) bodies, resistant to standard antibiotic as well as other treatment. According to Stratton, the cryptic form is basically a stressed form of *Chlamydiae* causing production of HSP 60, which is considerably more infectious than chlamydial LPS endotoxin. The same can be said about cytokine TNF-alpha, produced in macrophages penetrated by *Chlamydiae*. A significant proportion of infected people die in their working age, or shortly later. However, in occasional cases, some infected individuals can live to an old age (even over ninety years of age). These will presumably be instances (individuals or families) of very good immunogenetic disposition.

12. Apart from sporadic exceptions, the clinical picture of latent chlamydial infection is rather different from other bacterial infections. The most significant difference is the absence of typical inflammation symptoms (high body temperature, sedimentation, CRP and leukocytosis), infected people often do not show significant changes in their immunological picture. These are often visible after the infection develops into its acute or sub-acute stage or

in case of different diagnosis. The latent stage symptoms often indicate toxic, allergic, painful or mental disorder or discomfort, often connected with chronic fatigue syndrome.

13. Estimates of latent chlamydial infestation show signs of high prevalence, ranging between 50-80%. High infestation is registered namely in people involved in animal breeding and those suffering from various forms of chronic health problems. Our research (1, 26, 29) as well as other studies (6, 15, 20, 23, 25, 27, 28) find increased chlamydial antibodies in as many as 90% of the observed patients.

14. In chronic persistent latent chlamydial infection, *Chlamydiae* replicate only in a limited number of infected cells by means of isolated disseminated very small nidi, namely in mucosa and parenchymatous organs (23). These tiny nidi are gradually treated while similar ones form elsewhere. The latent stage can also record a sub-acute stage characterized by slightly flared infected mucosa, most easily perceptible in the conjunctiva, cornea and also rectum. Therefore the latent chlamydial infection shows only very low serological response and low (even undetected) levels of anti-chlamydial antibodies. The infected person is not aware of the persistence of these very small active nidi, which are clinically almost undetectable. An exception can be a sporadic occurrence on the tongue, nasopharynx and conjunctiva. In these cases, the infection can become perceptible in the form of a small, usually red, painful or itching spot; its size can range from a needle tip to a pinhead. The persistence of these small nidi can be the cause of cell reproduction breakdown and the origin of cancer. Recent theories are putting forward possible causal connections between the TNF-alpha cytokine and the origin of cancer and immunity disorders. Latent chlamydial infection can, under specific conditions, transform into an acute or sub-acute stage of infection. Most physicians, however, consider this as reinfection.

15. Direct proof of *Chlamydiae* (microscopic, PCR, LCR) in the latent stage is very difficult, but not impossible. Due to the facts that the location of the infection is unknown and that *Chlamydiae* replicate only in a limited way (the replication process may even be stopped), it is very difficult to obtain the respective infected samples in the latent stage of the infection. Direct proof usually takes form of an accidental detection or acquiring infected samples at the occasion of a sporadic transition from latent to acute (or sub-acute) stage of the disease.

16. Serological diagnostics of a chronic persistent chlamydial infection is also complicated due to lower or low (even zero) immune response in most infected people. This is manifested by low (sporadically zero) levels of anti-chlamydial antibodies, which are predominantly considered as signs of previous infection. That is why serological diagnostics and namely taxonomy of chlamydial infections in latent stage is often inaccurate and misleading. Uncertain serology, which has not yet been properly researched in this form of the disease, combined with insufficient knowledge of the clinical manifestation of the disease (usually not indicating bacterial infection) are the causes of complicated diagnostics. This, however, can be made more reliable by serological comparison with the respective patient's family members, who may not yet be showing symptoms of the disease, but may already be carrying latent infection and show low levels of anti-chlamydial antibodies. Another factor

contributing to the reliability of serological diagnostics is determining HSP 60 level. In the latent stage, *Chlamydiae* (due to the influence of the Gamma interferon from activated T cells) change their metabolism, become metabolically inactive, do not replicate and become chronic persistent. At the same time, the production of the outer membrane protein (MOPM) significantly weakens while the production of the heat shock protein (HSP 60) dramatically increases. (12) This finding is evident also in serology of people suffering from long-term chronic persistent chlamydial infection included in our research. Most of them showed lower or low (which physicians interpret as 'negative') levels of IgA antibodies and higher or high (positive) levels of HSP 60 antibodies. Despite the above mentioned inaccuracy of serological diagnostics, it should be considered as very important and necessary in objective diagnostics of chronic persistent latent chlamydial infection (conditioned by adhering to the relevant findings: low IgA levels, higher HSP 60 levels and corresponding anamnesis of the disease). Our findings reveal that IgA antibodies at 1:10 (0.1) and IgG antibodies at 1:20 (0.2), combined with HSP 60 seropositivity are reliable indicators of persistent chlamydial infection. Several authors claim the IgA antibodies decay interval to be 5-7 days following the infection disappearance (In case of total elimination of the infection, the level of IgA antibodies should be zero). For this reason, the presence of IgA antibodies is considered as a reliable indicator of persistent chlamydial infection. The reliability of serological diagnostics could be further improved by determining levels of TNF-alpha.

17. In some infected people, specialized serological diagnostic laboratories detect concurrent (even repeated) infection by *Chlamydia trachomatis* and *pneumoniae*. This seems to be improbable. We believe that such a case can be a coincident cross reaction to a genus-specific antigen of the outer membrane (MOPM), which is the same for all types of *Chlamydiae*. We may be dealing with a single genotype of *Chlamydiae*, which changes only its phenotype according to which organic system it affects. From the point of view of pathogenicity, differentiation between types of chlamydial infection is pointless, as it is identical in all types of *Chlamydiae*. This view is supported by international research. However, we should allow for certain differences in pathogenicity of respective types of *Chlamydiae*.

18. Serological diagnostic laboratories may, despite correct serology, frequently make a mistake in evaluating the level of anti-chlamydial antibody titres. Sometimes, new serological testing is recommended within a short time, expecting for antibodies growth. However, in latent infections, growth in antibodies is very exceptional. The latent stage is characterized by relatively stable level of antibodies without significant dynamics. As a consequence, infected people may be very often wrongly diagnosed as negative, even in cases when direct proof simultaneously shows presence of elementary bodies (EB). Sometimes, different laboratories reach different results in one and the same serum. Positive diagnostics of chronic persistent infection should be determined by antibodies levels already at 1:1 6-20 for IgA and 1:64 for IgG (4) and concurrent positive level of HSP 60. The currently required minimum level of antibody titres for positive diagnostics (0.9-1.1) refers to acute infection rather than latent one. Correct determination of chronic persistent chlamydial infection should be based on diagnostics of IgA antibodies. Given their disintegration span of 5 to 7 days, even a small

amount of persisting IgA antibodies (even significantly below 0.9) is a reliable indicator of chronic persistent infection. (4,26,27)

19. Higher or high immune response is detected mainly in more serious acute inflammations characterized by high body temperature (lung inflammation, urogenital infection). Less serious local acute inflammations (conjunctiva, testicles, meningitis) usually show low immune response, which is often not regarded as chlamydial infection. In cases of meningitis, even lumbar puncture often brings no proof of chlamydial infection. The question remains whether inflammations of the brain and nerves may be often caused also by secondary influence of *Chlamydiae*. In order to simplify diagnostics of latent chlamydial infection and make it more accurate, it is necessary to find an easier and more reliable method (for instance a dermal allergy test combined with a different method of determining HSP 60, TNF alpha, IgA, IgG, and monoclonal antibodies). The HSP 60 serology is to be considered an essential part of chronic persistent latent infection diagnostics. Low levels of IgA antibodies in chronic persistent infections can be found even in exudates from infected organs (joints, pleura, mucous membrane, and CSF).

20. One and the same type of *Chlamydiae* may, in its transition from latent to acute stage, gradually cause acute inflammations of several organic systems (lungs, conjunctiva, brain, urogenital organs, intestines, etc) either in one person or in other family members. Such diseases are usually treated antibiotically, without considering the possibility of chlamydial infection. As the latent infection persists even after antibiotic treatment, these patients may experience reoccurrence of acute diseases (this is often wrongly diagnosed as reinfection) or they may suffer from sub-acute forms of infection, most commonly repeating eye, respiratory and urogenital infections.

21. Human medicine mostly focuses on *Chlamydia pneumoniae*, but in fact, most cases of chlamydial infection are *Chlamydia trachomatis*, though not its form Lymphogranuloma venereum. We should also consider the possibility of *Chlamydia pecorum* infection, namely in animal breeders. This connection could be a gateway for further spreading of the infection among human population. At present, there seem to be no expert team researching into this theory. We have detected *Chlamydia pneumoniae* in swine and *Chlamydia trachomatis* in cattle. Both forms of the infection were detected also in people working with these animals and in their family members, but at the same time also in people not involved in farming.

22. At present, neither in the Czech Republic, nor elsewhere in the world can we find an expert team carrying out a thorough research into the issue of the wide spectrum of chlamydial infections, their diagnostics and treatment of chronic persistent latent chlamydial infection in a scale comparable to this study. The only exception is work by Dr.Stratton at al. at Vanderbilt University, USA, and Dr.Wheldon and Dr.Sriram, who provide information about some related diseases and especially about possible treatment of these. So far, this issue seems to be a taboo in human medicine. Patients and people suffering from long-term infections are often made to believe that their problems are not real and are diagnosed as suffering from mental disorders, while, in fact, they often suffer from incredibly severe physical pain. Recent medical discoveries and research published in expert journals and the

Internet finally start to allow some insight into the issue and treatment possibilities. American experts, Dr. Stratton and Dr. Azenabor (and others) introduce ways of possible treatment. Scientific objectification of the influence of latent chlamydial infection on the occurrence of a wide range of diseases and their efficient treatment will undoubtedly become an invaluable and possibly the most contributing scientific discovery in medicine, improving the health and life span of human population.

23. Short-term antibiotic treatment may be successful only in acute forms of the infection, but in most cases, its result is probably transformation of *Chlamydiae* into its cryptic, non-replicating phase. Thus *Chlamydiae* turn into a time bomb in the organism of each individual carrying the latent infection. Unfortunately, medicine is reluctant to accept this theory. Long-term antibiotic treatment may deal with latent chlamydial infection, i.e. it may temporarily improve the state of health of the patient. However, it is not possible in all cases. At present, according to patients, long-term treatment introduced by Dr. Stratton (and Dr. Wheldon) (www.cpnhelp.org, www.chlamydie.info) seems to be the most efficient one. It focuses on eradication of all stages of the pathogen. The treatment is rather unpleasant and demanding both in the context of time and endurance. It is quite aggressive and in the Czech Republic currently officially impossible. Nevertheless, patients suffering from severe problems often turn to this treatment as their only chance, venturing beyond the realms of legal medicine. Antibiotics (namely macrolide) exercise inhibitive influence only on elementary bodies (EB). Antibiotic treatment is unable to deal efficiently with the cryptic stage; it affects neither sleeping bodies, nor *Chlamydiae* in macrophages. According to Stratton, efficient treatment requires combination of antibiotics with other medicals, especially following the pharmacologic transition from the cryptic to the acute stage. This should form the elementary focus of further intensive research into the treatment of chlamydial infections. The treatment should be thoroughly clinically tested on a sufficient number of patients, which would eventually determine precise treatment methodology. Unfortunately, the treatment is not suitable for children and thus it is not possible to entirely eradicate the pathogen in infected families. Therefore, it is essential to seek another, less aggressive forms of treatment.

24. In their cryptic form, *Chlamydiae* are able to persist in infected individuals in the course of their whole life. It is highly probable that in an organism suffering from latent chlamydial infection, *Chlamydiae* exist in their active nidi form, as well as in their developmental form of reticular bodies and cryptic form of sleeping bodies. These bodies are presumably able to transform from their cryptic form to an active latent form or even an acute form and vice versa. Triggered by stress factors and weakening of the organism, they can cause various, very serious health problems. They are also probably able to transform from both stages into an acute form on a larger or large scale.

25. In their latent stage (exceptionally even in the cryptic stage) *Chlamydiae* in the long run cause a number of problems, most of which are impossible to diagnose, but they also cause health problems and diseases whose cause is not yet fully known. Mostly, these problems and diseases are not associated with chlamydial infection. Therefore, a number of diseases are often mistakenly attributed to genetic dispositions (in fact it is an infection passed

on to other family members and generations and causing the same or similar health problems), weakened immunity, mental disorders, lifestyle, environmental factors, etc.

26. In the ensuing 5-10 years, we can expect a number of new, for experts as well as the public surprising, discoveries in the area of latent chlamydial infections. These findings will bring a dramatic shift in the view and diagnostics of most human diseases. We would like our study to become a factor promoting this shift and significantly shortening the above mentioned period. It is necessary to coordinate attention and efforts of the world's leading experts in order to intensify research into this issue.

27. In the early 2008, a new civic association (www.chlamydieos.cz) was established in the Czech Republic, bringing together people suffering from chlamydial infection. The association's web site offers information about the infection as well as findings of our research into the disease. Experts interested in conducting a serious scientific research can find there useful methodology help as well as volunteers (latent chlamydial infection patients) willing to be involved in the research.

28. This paper is based on both scientific and logical findings. The above stated facts and results are results of long-term research and work with over one thousand infected people.

Conclusion

After more than forty years of researching into the causes of the emergence of various diseases and health problems in the above mentioned breeder and his family members, as well as over one thousand affected people of various professions suffering from identical health problems (sometimes even whole families), the authors of this article have come to the conclusion that the cause of these problems is a latent, chronic persistent *Chlamydiae* infection.

The functioning of human organism (similarly to other species) is governed by specific physiological rules, which are fixed and under normal conditions invariable. In order to acquire a disease, the organism must be given a critical impulse bringing about disruption of these physiological rules. *Chlamydiae* can serve as such an impulse. Other possible influences can also be significant, but in many cases they just hasten and potentiate the onset of *Chlamydiae*-caused diseases. On the bases of our research and its logical implications we conclude the following:

1. The family of the breeder suffering from chlamydial infection (primo-infection of the eye in 1965) recorded, over fifty years following the primo-infection, a family anamnesis containing a wide range of serious diseases (Alzheimer's disease, circulatory and respiratory systems failures, diabetes, cancer, tinnitus, chronic fatigue syndrome, tremor, a number of subjective health problems and other diseases). None of these health problems and diseases were recorded in the family anamnesis prior to the primo-infection. Table 3 clearly demonstrates (without a need of expert medical insight) that the range and occurrence of these diseases in the breeder's family significantly exceeds figures representing general population. This finding unambiguously identifies the role and influence of latent chlamydial infection on the occurrence and development of these health problems in the breeder's family. This case study, together with similar cases throughout the entire population form the cornerstone of our research findings.
2. Over 90% of people suffering from diseases and health problems described in this study are positive for IgA, IgG and HSP 60 antibodies. The connection between latent chlamydial infection and levels of these antibodies is well documented also in a number of international studies. The figure applies also to people involved in animal breeding.
3. Bacteria of the *Chlamydiae* genus are microorganisms capable of lasting, chronic persistence in the cells of the infected organism in the course of the organism's entire life (sometimes since birth).
4. *Chlamydiae* are able to replicate even in the immunity system cells (macrophages), invade the circulatory system, disseminate throughout the organism and persist in a cryptic (Dr. Stratton uses the term 'stressed') form as an intracellular parasite.
5. In their latent stage, *Chlamydiae* generate neurotoxins in the host organism (heat shock protein HSP 60, tumor necrosis factor alpha TNF-alpha, and lipopolysaccharide LPS). Long-term influence of neurotoxins in the infected organism (especially highly toxic HSP 60) results in a number of mental and psychiatric disorders and diseases, such as Alzheimer's disease, Parkinson's disease, Meniere's disease, epilepsy, sclerosis multiplex, schizophrenia, Neuropathy, Fibromyalgia, Muscle weakness, and tinnitus. It can also cause degenerative brain disorders (we may presume that it can be responsible also for amyotrophic lateral sclerosis ALS). People with good immunogenetic disposition record lower occurrence of serious diseases, but in the long run, chlamydial infection in their organism causes a wide range of subjective

(often undiagnosable), painful and severe health problems. Anamneses of such immunogenetically disposed individuals are strikingly similar.

6. Long-term influence of pathogen factors of the cryptic form of *Chlamydiae* infection (production of neurotoxins, chlamydial penetration into macrophages and the circulatory system, direct influence of *Chlamydiae* on the infected cells, autoimmune and inflammatory effect, development of allergies, etc.) and namely their cumulative influence result in disorders in a number of physiological processes in the infected organism. This supposedly has causal relationship with cell metabolism disorders and development of a wide range of, often very serious, health problems in many areas of human medicine.
7. The occurrence of genetically determined diseases in infected families with no previous record of such diseases suggests a possible influence of pathogen chlamydial factors on the development of cell division mutations and chromosomal aberrations in the course of intrauterine development of an individual.
8. Current human medicine is ignorant of these facts and does not have reliable diagnostic means capable of detecting latent chlamydial infection. This is due to low levels and dynamics of chlamydial antibodies in the blood serum (and other body fluids) in the latent stage of the infection. Diagnostics of HSP 60 is used only rarely and its seropositivity is often ignored. Detection of low levels of chlamydial antibodies is generally interpreted as an indicator of previous and successfully treated infection. Unfortunately, this is a wrong interpretation.
9. The findings of our research show that latent chronic persistent chlamydial infection can be reliably diagnosed by detection of levels of IgA antibodies at 1:10 (0.1), IgG antibodies at 1:20 (0.2) and concurrent detection of HSP 60 antibodies. These conclusions are supported by a number of international studies which similarly claim that even persistent low levels of IgA, IgG and HSP 60 antibodies are reliable indicators of chronic persistent *Chlamydiae* infection. These findings challenge the currently accepted diagnostics that finds positivity only at the 1.1 (and higher) level of antibodies.
10. Serological tests for chlamydial antibodies in the same serum, done in more laboratories sometimes bring varying results. Sporadically, even within one laboratory testing, two samples of the same serum show varying levels of antibodies. This can be attributed to the quality of the diagnostic antigen used, test methodology, or even laboratory work procedures. Therefore, in such cases, it is necessary to carry out

serological tests of the problematic serum in two laboratories or repeat the testing procedures.

11. Short-term antibiotic treatment of latent chronic persistent chlamydial infection is usually ineffective. Possible successful treatment of chlamydial infection is almost always short-lived and patients often experience later recurrence and even intensification of health problems. However, patients that have undergone a long-term combined antibiotic treatment (Dr. Stratton's or Dr. Wheldon's methods) state significant improvement of their health. Unfortunately, the side effects of this treatment can be very unpleasant and in result, some patients decide to abandon the treatment, which can lead to later recurrence of their health problems. What needs to be further researched into is the length of the combined antibiotic treatment (months or years?), as well as problems of possible reinfection, mostly from other family members.

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