COMMUNICABLE DISEASES IN THE CZECH REPUBLIC - PAST, PRESENCE AND FUTURE

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Summary

Current trends and development in nosocomial infections, respiratory and diarrheal diseases, AIDS and viral hepatitis in the Czech Republic are discussed. Based on presented data conclusions for policy makers are offered. Implementation of mass immunization against Hib and Hepatitis B into routine immunization schedule for children in Pentavaccine with DTP seems to be the major issue.

KEY WORDS: Communicable diseases control; Immunisation strategy; Epidemiology.

Communicable diseases control has a long tradition in the Czech Republic. In spite of decreasing death rates since the second half of the 20th century communicable diseases still play very important role following closely death rate figures for cancer diseases. Communicable diseases are considered to be the most frequently occurring diseases, which cause substantial part of general sickness. However, their ratio on disabilities declines thanks to rapidly developing treatment and preventive measures. On one side the Czech hygiene - epidemiological service has reached many successes in this time period. Elimination of polio clinical cases in 1961 belongs obviously to them. On the other side there are new etiologic agents causing serious diseases like AIDS.

Acute respiratory diseases prevail nowadays with almost 1 148 362 reported cases in the 1995/1996 season. Based on ever improving standard of hygiene diarrheal diseases are lowering their importance. Sexually transmitted diseases seem to be more urgent problem of the current period. A new wave of democracy and freedom brings not only advantages but also even many negative issues that should be solved by the new liberal society. There are, e.g. rapidly increasing numbers of parenteral drug abusers and Sexually transmitted diseases concerning sex industry and newly developed prostitution on highways to the German and Austrian borders. It was unimaginable to detect even one case of congenital syphilis few years ago. The situation is much more alarming today. Couple of cases was reported just in children of prostituting women.

Reporting system of communicable diseases is very well established in our country. There are always discussions if the reported data are valid or not. Factor of underreporting plays usually the key role. According to rough estimations this factor varies between 3-30 world-wide. We have tried to validate an issue of underreporting in our country using some model disease in which we can calculate real incidence in different years based on serological surveys and prevalence in different age cohorts. Our results seem to be proving the factor of underreporting 2.9. A fully automated system has been used since 1982. The first generally used reporting system in the Czech Republic was called ISPO (Information System on Communicable Diseases). The ISPO system was replaced by EPIDAT later on. EPIDAT is an automated reporting system developed on EPI-INFO (CDC Atlanta). This very powerful tool enables beside data storage also their analysis by means of current statistical tests and methods. Data are collected on regional level, sent via fax modem, recollected on district level and finally assembled in the National Institute of Health, where they are processed and analysed.

Table 1

Selected communicable diseases in the Czech Republic in 1997 (Absolute numbers, population 10 300 000)

Diagnosis	Absolute numbers
Salmonellosis	38 481
Shigellosis	651
Tetanus	2
Whooping cough	114
Meningococcal diseases	162
Lyme diseases	2450
Malaria	20
Tick born encephalitis	415
Varicella	45 556
Hepatitis A	1187
Hepatitis B	559 acute + 40 chronic
Toxoplasmosis	942
Scabies	8715

AIDS and STD

Since 1996 incidence and death rate on AIDS decreased in the U.S. and Western Europe for the first time. The decrease almost by 20-30 % was mainly due to „Highly effective antiretroviral therapy". However, situation in the Czech Republic has not been influenced by this trend up to now. There are still serious and remarkable problems, which have not been solved. We suppose high costs will limit essentially accessibility to the treatment in our country. Information about the new approach can change also attitude of our possible patients or volunteers to testing. We can expect rapidly increasing demand on testing because of a new chance to survive.

The trend will represent much higher expenditure from the state budget. Only safe, effective and all major subtypes covering vaccine can definitely solve the problem.

Table 2

HIV infection in the Czech Republic (31. 12. 1997)

Order	Region	Number of HIV +
1.	Prague	215
2.	North Moravia	29
3.	North Bohemia	27
4.-5.	West Bohemia, Central Bohemia	24
6.	South Moravia	21
7.	East Bohemia	14
8.	South Bohemia	7

General situation whit HIV+ and AIDS is not so bad in the Czech Republic. Nevertheless, trends are ever increasing and we can expect similar figures as in Western Europe in a few years. Majority of the cases is in Prague (Table 2), all the other regions have relative incidence based on reported data about 2/1 000 000 inhabitants. Similar regional misbalance in other STD is due to sexual industry in Prague and in North Bohemia. Absolute figures in North and South Moravia are little bit misleading because of almost doubled catchment area.

Respiratory diseases

Influenza and other respiratory diseases cause high morbidity and sickness rates in all the countries. TB data are not so alarming and the situation is under control. In the past we have decided not to immunise children in 3 regions experimentally. The reasons of this provision result from frequent adverse reaction rates of the Russian vaccine commonly used in our country and low incidence of TB. After couple of years it was clearly seen that such approach could endanger controlled situation and increase relatively low numbers of cases. The original decision has been re-evaluated and regular immunisation was incorporated into basic child immunisation schedule again.

A new situation has developed in invasive Meningococcal diseases in the last years. Increasing numbers of death evoke almost panic reaction in society. Prevailing agent was N. meningitidis serotype C. Some deaths occurred also in the Czech Republic Army. The situation was analysed and it was decided to immunise all the recruits (approximately 40 000 soldiers yearly). This preventive measure was very successful and practically eliminated occurrence of invasive Meningococcal diseases in our army. Because in the current period starts to prevail N. meningitidis serotype B we should reconsider a strategy for the future.

Whooping cough was the leading cause of death even after the 2nd world war. Since 1958 when immunisation program and surveillance has been introduced in the Czech Republic descending trends where recognised. The decrease was finished in middle 70s. Only single cases were reported. Currently we can find an increase for which mainly imported strains are responsible. 1997 incidence was 114 cases.

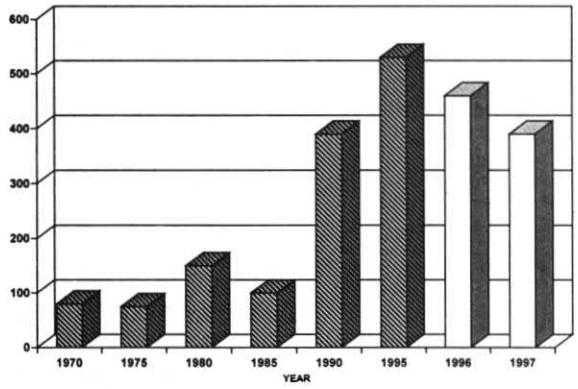
The problems to be discussed are childhood viral exanthems. Small epidemics occur in adolescents and young adults. The reason is a childhood immunisation and shift of similar diseases to higher age cohorts.

Diarrheal diseases

Diarrheal diseases are very well known due to abroad spectrum of different agents. Shigellosis is one of the most important groups. Nevertheless, a trend is positive, it means declining since 1975. The only one exception is the year 1997 where some cases were imported from Russia and Turkey. Salmonelosis have quite different trend in ever increasing numbers (Figure 1) except 1996, 1997.

What we can however observe in the last years is replacement S. typhimurium by S. enteritidis and ongoing trend to multiresistance as in Western Europe. Typhoid fewer has really rare occurrence since the epidemic in 1945.

Figure 1 Salmonelosis - incidence 100/100 000



Viral hepatitis

There are 3 basic viral hepatitis A, B, C occurring in the Czech Republic. Hepatitis D is very rare with 0.3 % spread in HBsAg positives. Viral hepatitis E is quite exceptional. Yearly incidence in hepatitis A varies around 10/100 000 with descending development since 1979 when the largest epidemic was reported with almost 30 000 cases. Frozen strawberries were recognised as an infectious vehiculum of this epidemic. The main groups with risk behaviour are Gypsies and drug addicts nowadays. Nevertheless, seroprevalence of anti-HAV antibodies is generally very low. Only 23 % persons in the age under 40 have positive protective anti-bodies. Hepatitis B reaching incidence 6/100 000 is under control thanks to immunisation of risk groups, particularly health care workers.

More demanding just now is situation concerning hepatitis C. Subtype 1b occurring most frequently in our conditions is very resistant for interferon therapy and new drug combinations should be discovered.

Hospital infections

Total 136 241 cases of communicable diseases have been reported in 1997. Only 753 of them are considered to be nosocomial. In ISPO (previous reporting system) we can find incidence ranging 2 % and some prevalence studies show up to 7 % of nosocomial infections (at special department like urology 25 %). We do not believe that the standard of hygiene is much higher. Incentives play the more important role in our opinion. System of financing based on Fee for service is not very challenging for reporting higher numbers of nosocomial infections. Those infections are „welcomed" in reality because they bring more money for treatment. We suppose that a new system of financing stressing DRG in hospital funding can change this attitude.

Immunisation strategies

Routine immunisation schedules are very similar to those in western countries. Two main problems are discussed. If to implement mass immunisation against Haemophilus influenzae type B and hepatitis B in to routine schedules. Vaccination against Hepatitis B seems to be the most efficient in the age of 12 from the epidemiological perspectives, however a combined vaccination against Hib and Hepatitis B and DTP is the most cost benefit-bringing solution. Responsible decisive authorities have not still accepted the final conclusion.

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