MIXED INFLUENZA-ADENOVIRAL INFECTIONS AMONG WORKING STAFF DURING THE PERIOD 1975—1979

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Nowadays the problem with mixed viral infections shows certain importance, specially concerning the polyetiology of numerous infectious diseases and viral-induced tumours, also the pathogenesis of chronic viral infections, development and application of new methods for vaccinal strains, the mechanism of integration of viral genome with that of the cell, etc.

The term “mixed infection” should be defined as a combined participation of two or more microorganisms in the infectious process or entering the macro-organism several pathogenic agents (1).

In many cases mixed infections do not contribute only to the simultaneous action of several microorganisms, but also to the development of a secondary infection during the recreative period after the first one. It is known that any infection is a possible reason for the development of another one; therefore, the first pathogenic agent causes an easier enter of a second one.

Viral associations with a constant or accidental content come out of various taxonomic groups of viruses and represent one of the evolutionary developed forms of existence in the biosphere. It is also known that the cooperation of the viruses plays an important role for realization of many their functions in the affected organism. They change the spectre of sensitiveness of the hosts, thus assisting their persistence and chronification. Numerous effects of combination between viruses are based on the complex character of interrelations between their populations under conditions of virus-induced and changed reactivity of cells and macroorganism as a whole (2).

R. Dreizin, V. Arnaudova, V. Zjdanov (3) report a combined action of adenoviruses and some other respiratory infectious agents. Investigating 30 epidemics they establish that only 16 are caused by a single virus, whereas another 12 are with a mixed etiology: 8 — latent adenoviruses, 4 — associated to some other etiologic agents.

S. Petrov, P. Vuchkov (4) studied 1906 patients and their data show 29 cases with mixed infections, 18 of which had a diagnosis “pneumonia”. 9 of their cases had a double association: virus-ricketsia, 6 — triple: virus-virus-ricketsia.

Some clinicists (5, 6, 7, 8, 10) consider the associated adeno-viral (influenza) infections as an otener reason for the development of a heavy pneumonia in comparison with those caused by monoinfections. I. Dobrev (9) establishes that there are certain cases of associated RS-viral and adenoviral infections, also influenza and parainfluenza infections. He reports that these associated infections show a prolonged and untypical development when compared to the monoinfections.

The acute respiratory viral infections, specially influenza and adenoinfections, are distributed mainly in small groups or collectives of people.
Presuming all that we have for an object of our study to investigate such infections among working staff and to evaluate the role of associated influenza-adenoviral infections for a longer period of time.

**Materials and methods**

We studied smears of rhino-throat materials together with double serum tests taken from patients from our district, during epidemic period and as well as only certain sporadic cases. We studied a total number of 1464 patients with influenza and ARD (acute respiratory diseases), aged 20—55 years; 980 of them were accepted to the Navy Hospital, with a prevailing diagnosis “bronchopneumonia”.

Our control group consisted of 150 healthy blood donors, same age group, same groups of same staff.

Viral investigations were performed onto a model of cell culture HEK (human embryonal kidney), from Laboratory of Adenoviral infections, Higher Institute of Medicine, Varna. We also applied 10—12 day-old chicken embryos. The serological study was performed by using the standard routine methods: Delayed Haemagglutination Reaction (DHR) and Reaction Binding of Complement (RBC). The immunofluorescent investigations were done directly onto ML-2 and MLD. Parallelly the patients were examined clinically in the hospital.

**Results**

Table 1 shows the serological investigations: influenza-positive double sera are 17.64—37.27% (mean 27.53%); adenoviral — 9.17—13.58% (mean 11.07%); associated adeno-influenza cases are averagely 2.120%.

Table 2 shows the virological investigations: isolated adenoviruses are 6.58—8.62% (mean 7.85), whereas influenza viruses vary considerably: 19.6—81.6% (mean 39.26%). Associated adeno-influenza infections are 1.03—2.3% (mean 1.65%).

Table 3 shows the immunofluorescent investigations: positive influenza cases are distributed between 25.8% and 44.8%, mean 34.5%; adenoviral infections — 9.3—29.0% (mean 16.12%); associated — 4.1—13.9%, mean 9.92%.

The control group shows 3.2% positive influenza cases and 8.4% adenoviral. This group does not reveal out associated adenoinfluenza infections.

**Discussion**

It is obvious that during the influenza epidemics the percent of the associated infections is rather lower compared to that of the pre- and specially post-epidemic periods. It is very probable that this fact is contributed to the extremely pure influenza infections studied during epidemic waves or even maybe contributed to an eventual association with some other viruses or ricketsia.

Clinical examinations prove 75% laboratory coincidence of viral association. Usually all patients accepted to the clinics with a diagnosis “bronchopneumonia” show a prolonged course of the disease, treated before that stationarily in the squads’ sanitary office 5—15 days, where most often the diagno-
sis was "acyte cathar of the upper respiratory tract", but with untypical development: weakness, headache, myalgia, coughing, throataches, subfebrility, etc. Therefore, the clinical syndrome is not the typical one for such a diagnosis, usually caused by only one virus and our efforts have to be directed to establish the associated infection.

REFERENCES


СМЕШАННЫЕ ГРИППНО-АДЕНОВИРУСНЫЕ ИНФЕКЦИИ СРЕДИ МОЛОДЕЖИ ЗА ПЕРИОД С 1975 ПО 1979 Г. Г.

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РЕЗЮМЕ

Проблема смешанных вирусных инфекций приобретает все большее значение, что связано с выяснением полиэтиологии ряда инфекционных заболеваний, с разработкой новых методов получения вакцинальных штаммов, с механизмом интеграции вирусного генома с геномом клетки.

Острые респираторные вирусные инфекции, в частности гриппные и вирусные, исключительно распространены в замкнутых коллективах. Целью нашего исследования было проследить инфекции указанного типа среди коллективов молодежи и установить удельный вес ассоциированных гриппо-аденовирусных инфекций за период с 1975 по 1979 г. г.