

COVID 19 and Spanish flu pandemics: All it changes, nothing changes

Antonia Francesca Franchini¹, Francesco Auxilia², Paolo M. Galimberti³, Maria Antonella Piga⁴, Silvana Castaldi^{2,3}, Alessandro Porro¹

¹Dipartimento di Scienze Cliniche e di Comunità, University of Milan, Italy; ²Department of Biomedical Sciences for Health University of Milan, Italy; ³Fondazione IRCCS Ca' Granda Ospedale Maggiore Policlinico di Milano, Italy; ⁴Dipartimento di Oncologia ed Emato-Oncologia, University of Milan, Italy

Introduction

An outbreak of severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) started in December 2019 in China and was declared a pandemic on 11.03.2020 by World Health Organization (WHO) (1).

Globally the WHO, on 22.04.2020, communicated 2.471.136 confirmed cases and 169.006 deaths (2).

To face this epidemic we are not in a different situation than in another period of our history when we had to manage the Spanish flu during the first world war.

We do not know this virus, the characteristics of its disease, which drugs might give relief to patients and we do not have a vaccine.

In other words we do not have nothing, we are in the same situation as during the other outbreaks.

Nowadays we can rely on preventive measures as:

- physical distances of 1,5 meter
- masks and gloves
- to measure body temperature at the entrance of closed areas (it must be lower than 37,5°)
- to ensure disinfection rules in public contests as transports, shopping areas, schools, universities
- protect healthcare workers with appropriate Personal Protection Equipment (PPE).

Chiefs of Government and Ministers of Health, Scientific and Technical Committees, all over the world, have different positions for the adoption of preventive measures to stop the contagion and, on media, we can observe discussions upon the use of masks, the

introduction of a lockdown, the closure of the schools and universities as we can read in the documents during the Spanish influenza epidemic.

Is there something new?

The aims of this paper is to describe and discuss the approaches to an epidemic by comparing the the SARS-CoV-2 epidemic and the Spanish flu.

Alert or normality? The Spanish flu in the “chronicles” of Milan (1918-1919)

In Milan, *whispers* around the *Spanish grippa* provoked an official intervention by Guido Bordoni-Uffreduzzi (1859-1943), who was the chief physician of the Municipality.

The war censorship was still in force for this reason it was chosen an interview, published in *Corriere della Sera*, one of the most important Italian newspapers at the time, which was printed in Milan (3).

The long article dealt with health conditions of the city, minimizing the mortality rate, which had alarmed the population.

The Milanese doctor referred mainly to other gastrointestinal pathologies.

However, when asked specifically about the *grippa*, the doctor could not minimize the situation.

It was a real *pandemic*, while the cases that had been previously observed were defined as *sporadic*.

As an example of a previous pandemic, Bordoni-Uffreduzzi recalled the flu pandemic of 1889-1890.

Stopping the course of the flu was not possible because of its rapid propagation; the aim was to limit its spread.

At a population level it was proposed to isolate the sick, avoid crowding, especially in communities, and disinfect the environments.

At the individual level, it was proposed to avoid contact with the sick and convalescents, unnecessary displacement and travel, trying to maintain daily life habits as much as possible.

It was recommended to wash hands several times a day and to protect the oropharynx in some way with mildly disinfectant mouthwash.

At the beginning of October, a blurb reported, anonymously, positions of strong downsizing about the importance of the phenomenon: it was nothing new; it was a normal flu; mortality was not high and weak or *predisposed people were affected* (4).

Among the drugs available, the first mentioned were quinine and aspirin.

The literature of the time reports that in the Italian cities were attempted therapies based on preparations of garlic, iodine tinctures, small doses of phenic acid, camphor, preparations with cinnamon oil (cinnamon), salvarsan, castor oil, sodium bicarbonate, sodium citrate, but all were unsuccessful. Even bloodletting reappeared, repudiated by doctors at the end of the 19th century, with negative results, especially when it was used in patients with pneumonia as a flu complication. The impotence was so great that, after examination of the measures taken with ineffective results, the conclusions were that the same results could be obtained with the simplest of treatments: the abundance of air in the environment in which the patients are (5).

If the central government tried to minimize the problem, in Milano the situation was quite different and two articles in the same issue of the newspaper demonstrate this.

The first one gives us an overview of the critical situation of the city's health care organization: there was a lack of doctors; the reporting of cases was difficult; the mortality rate had risen to 150 cases in one day; burials were hindered by the lack of personnel; there were long queues of people in public offices (6).

In the second article, in spite of a further government attempt to minimize the seriousness of the situ-

ation, further measures were announced: the closure of the cinemas, the lengthening of the opening hours of the service of pharmacies, the increase in health personnel thanks to the army collaboration of doctors and pharmacists (7).

At the city level, it was proposed the improvement of medical assistance at home; the recall of retired doctors into service; the injunction of freelance professionals; the systematic and regular disinfection of public offices, meeting places and theatres. In schools, the gatherings were to be avoided and classes and examinations were to be postponed.

The estimated number of cases in the city, in the absence of precise surveys, was 70,000 people; this number was indicated as an index of the *benign course* of the disease; however, a Military Hospital (in Piazza Fratelli Bandiera) had been converted into a civil hospital, organized by the Ospedale Maggiore.

The Hospital Council, the Military Health Service and the City Council had in fact entrusted the Health Management Board of the Ospedale Maggiore in Milan of the military hospital (1200 beds) to admit patients suffering from influenza and its complications.

The new branch of the Ospedale Maggiore, was open since 28 September 1918 and was closed due to improved public health conditions on 28 February 1919.

Among the prophylactic measures taken by the Ospedale Maggiore, even before the epidemic climax in October, we would like to remember not only the grouping of patients in special infirmaries, but also the suspension from 25 September 1918 of public visits on Wednesdays, and from 6 October, the regular disinfection of hospital premises attended by the public (reception and permit offices, atria, porticoes and churches).

On 3 October 1918, visits to the sick were forbidden, even to the seriously ill, and the use of toothpaste and nasal disinfectant solutions was proposed, as already experimented by military personnel; it was also thought to activate the disinfection of the churches (8-10).

The scientific news, from Allied nations were privileged also for propaganda reasons. From Paris it was reported, about the epidemic of 1889-1890, that *The course of the two epidemics is identical: benign cases at the beginning; further pulmonary complications; intestinal*

complications that often assume the characters of dysentery; extreme contagiousness of the disease, to which the hospital healthcare personnel pays a serious tribute [...] (11).

On 6 October, 1918 visits to guests of the Pio Albergo Trivulzio were forbidden, while the closure of the bars and taverns had not yet been established (12,13).

The situation became more and more worrying and although the authorities tried to minimize, health consultants, such as Luigi Mangiagalli (1850-1928), made them aware of the need to equip the healthcare staff with adequate protective equipment: gags, gloves, as well as hand washing. It was decided to close the taverns in the evening, suspend the funeral processions, sound the bells as external funeral signs such as closing the doors as a sign of mourning, limit access to public transport. Visits to the Provincial Asylum of Mombello were also suspended (14).

The danger of transmission of the infection by those who *were ill without knowing it or are about to become ill* thanks to *coughing* or *sneezing* was always dealt with scientific news from the Allied countries (15).

A very important series of news was published on the 16th October, 1918: first of all, it was recognized the situation so serious as to impose measures of greater hospitalization and home medical assistance; the more than 1000 beds guaranteed by the reconversion of the Military Hospital of Piazza Fratelli Bandiera would not be sufficient and at least another 4000/5000 were requested (16).

An experiment on the prophylactic efficacy of quinine was carried out on a sample of 700 healthy nurses from the Hospitaller Institutes of Milan (administering 2 tablets of State quinine salts every day for 15 days). However, it had no prophylactic action against influenza. It was recommended, however, not to divert quinine from its main use as an anti-malarial agent.

From September 1918 to April 1919, according to the documents and statistical health reports of the Ospedale Maggiore we consulted, there were: 5,684 inpatients (2,380 males; 3,324 females); healed 4,198; deceased 1,486; mortality rate 26.14%; days of hospitalization 89,414; average length of stay 15.73 (17,18).

Let us remember that the population of Milan in 1918 amounted to 688,000 inhabitants.

The personnel of the Ospedale Maggiore carried out its activities with self-sacrifice, even though the first deaths were already reported, in addition to a considerable number of sick people.

On 20 October 1918, the Pio Albergo Trivulzio made its structure available to receive flu patients; the problem to be solved was about the choice of which sick to transfer:

This will allow to immediately send a thousand sick people, choosing them among those whose hospitalization is more advisable, both for their own conditions and for their living environment (19).

On 8 November the measures were relaxed, but at the end of the year, on 29 December news was given of a possible rekindling of the epidemic.

On 31 December 1918, faced with the resumption of the epidemic, the previous restrictions were reintroduced, and an increase in the number of public transport services to have less crowding in the vehicles was discussed.

A few days later, in addition to ventilation, it was prescribed that no passengers could travel standing up (20).

However, the problem of contagion within families remained unresolved: in an interesting article dated 3 January 1919 it was claimed that:

Every house where there is a sick person becomes an outbreak of infection, which is generalized in the family and spreads outside [...] (21).

On 6 January 1919, an advertising insert gives us news of the possibility of using a *very light silk gag-mask with a very pleasant antiseptic liquid [...] In some American cities it has even been imposed on citizens who want to circulate, and it would be done in Italy, too, the numerous victims of the widespread contagion would be avoided in the same way (22).*

In a long letter, in which Serafino Belfanti (1860-1939) made available the vaccine prepared by the Milanese Serotherapeutic Institute, he correctly framed the problem of influenza from the scientific point of view: he stressed the hypothesis that it could be a virus, the data of epidemic upsurge and increased mortality, the need for the use of masks, the importance of vaccination (23).

He presented these ideas on 18 January 1919 to the Milanese health association with the proposal to

carry out multicentric and even comparative studies with epizootic diseases (24).

Immediately started the initiative of injections, stressing the need for the collaboration of the public in maintaining correct hygienic attitudes (25).

On a daily basis, bulletins are published with data from the epidemic, which showed a trend towards exhaustion.

The positions of the central authorities are re-confirmed, always tending to minimize the phenomenon (26).

On 18 February 1919, it was announced that no case of influenza had been reported.

Thus, on the 25 March, the Festa del Perdono (Feast of Forgiveness) at the Ospedale Maggiore could take place as usual, with thanks for the activity carried out by the health personnel and the memory of those who had sacrificed their lives (27).

At the end of April (on the 27 and 28) a medical conference dedicated to influenza took place: the discussion was now the responsibility of the scientists (28).

Wear a mask!

The BMJ on 2 November 1918 referred on the report presented by the Committee appointed by the Paris Medical Academy for the prophylaxis of influenza (29). They consisted of personal hygiene measures, as mouth washes and gargle twice a day with a glass of warm water added with a solution of chlorinated soda, and of population ones, as prevention of overcrowding and washing and disinfection of tramways and railways carriage, school closure. In the same paper also indications about what should be done in hospitals are given summarized as follows:

- reduction in the number of beds;
- creation of specific wards by separating the most serious (complicated) from the least serious cases: complicated cases, in turn, grouped, if possible, according to the type of complication;
- separation of beds with curtains or other barriers;
- discharge policies aiming at not discharging convalescents but keeping them under observation in facilities adjacent to hospitals;

- periodic disinfection procedures for wards and environmental sanitation (“destruction of sputa”);
- firm discouragement of visits;
- prescription of conduct staff must follow in order to protect them from infection and prevent them from becoming potential vehicles of infection; therefore they must behave according to specific measures for dressing, antisepsis of the hands and nasopharynx;
- separation of all patients with symptoms in an out-patient setting;
- ambulances’ disinfection.

In relation to the masks used in American hospitals, they are recommended if made with “half a yard of gauze, folded like a triangular bandage, covering the nose, mouth and chin, and tied at the back of the head”.

As mentioned, they were widely used in hospitals in the United States, but later their use was extended to the general population until they were imposed as in the case of the city of San Francisco. A video shot in the same year in which the end of the first world war is celebrated, shows a festive population gathering which, however, strictly respected this obligation (“Obey the laws and wear the gauze. Protect your jaws from septic paws”) (30). The Stanford University website quotes both the results of a study published in JAMA that reported a rapid decline in the number of cases of influenza among those wearing the mask, and the results of a research conducted in the Great Lakes region that did not show similar success (31). In fact, there was a small difference in the development of the disease between hospital staff who wore them and those who did not (8% vs. 7.5%) in favour of the latter. As far as Italy is concerned, Riccardo Chiaberge in the volume “1918 The great epidemic” quotes the Florence medical clinician Ferdinando Micheli who in “L’Igiene e la vita” (Hygiene and life) of the same year recommends as an individual initiative measure “a mask made with four or five sheets of dry paper to defend oneself from the nose-farino-bronchial secretions that patients leave talking” (32).

Conclusions

It’s not just assonances of SARS-CoV-2 with the 1918-1919 flu pandemic, but an absolute coincidence.

Coincidences both in the general unpreparedness, in the attitudes of the population and the authorities, and in the different strategies between central and peripheral authorities.

All measures adopted in 2020 were the same in 1918-1919, with the same sequence of progression, uncertainties, early loosening and hasty reversals (going back on own footsteps?).

Even from a scientific point of view all the elements had already been understood.

All the problems, such as, for example, social distancing, intrafamily spread, personal protective equipment, types of drugs (quinine, aspirin, anti-inflammatories, etc.), the need for vaccination, etc.. had already been detected and addressed by the means of the time.

Of course, the current availability of technology has made and continues to make a difference.

As far as the epidemiological data present in the health-statistical reports of the Ospedale Maggiore in Milan, they are related to: period to be considered (September 1918-April 1919); hospitalized 5,684; healed 4,198; deceased 1,486; mortality (on the hospitalized population) 26.14%.

The mortality rate, on the entire population susceptible to influenza, would have been 0.26% (population of 688,000 inhabitants in Milan in 1918).

Assuming that in Spanish flu times there was a mortality rate on the susceptible population between 1 and 2%, similar to today's SARS-CoV-2 (taking into account the fact that in both cases was not and is not available a vaccine), the deaths would have been between 5,700 and 11,400.

In any case, to accurately estimate the number of deaths would need to know the excess mortality in the municipality of Milan, compared to the previous year.

The 1918-1919 pandemic certainly led to vast improvements in public health. In fact, several strategies, such as health education, isolation, hygiene and surveillance, have improved our knowledge of influenza transmission, and are still implemented today to try to stem the spread of a disease such as the SARS-CoV-2 pandemic, which, like the Spanish pandemic, has a heavy burden.

For the current pandemic, we would have to discuss not only about the communication strategies, hospitals devoted to SARS-CoV-2 (such as lazaret-

tos?), reopening the various sectors (school, work, etc.), but also what has been done today in the wrong way: despite the current scientific and technological knowledge.

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Correspondence:

Silvana Castaldi

Dept Biomedical Sciences for Health, University of Milan, Italy

Tel 00390255038342

Fax 00390255033144

E-mail: Silvana.castaldi@unimi.it