

LEPROSY (in Europe) AT THE BEGINNING OF THE SECOND AND THIRD MILLENNIUM

E.Nunzi. P.P.Cardo

Leprosy at the beginning of the second and third millennium.

January 2000 marks the 850th anniversary of the ward dedicated to leprosy sufferers in Genoa. The authors commemorate this anniversary by analysing aspects of leprosy at the beginning of the second and third millennium.

Key words: Leprosy – History of medicine.

Leprosy is an infectious disease and has a strong impact for the community, and for the patient's serious disabling sequelae due to the localization of bacilli in peripheral nerves and to the consequent immunitary reaction

Before the introduction of Sulphones in the treatment of leprosy in 1941, the patient was always bound to become disabled and in certain forms of leprosy the patients remain contagious all their life long.

The environmental situation has a great importance in facilitating or preventing the infection. In fact, a socially and hygienically degraded environment facilitates the contact between bacilli and healthy subjects.

In all ages and in all civilizations the leprosy patients were doomed to be rejected by the community. At first the leprosy patient, being disabled, was sent away as socially useless individual, then during the centuries the belief that leprosy was an infectious disease emerged, strengthening the leprosy patient's isolation

Leprosy in Europe

The Phoenicians were among the first to spread leprosy at intercontinental level. This population of sailors and traders acted as intermediary between India, one of the main leprosy foci, and the Mediterranean sea so much that in ancient Greece leprosy was also called "Phoenician disease" or "Tyre disease".

In ancient times leprosy increasingly spread in a very fast way due to the displacements of the armies: from Cyrus to Alexander the Great, from the Romans to the Byzantines, from the barbarian and Saracen invasions to the Crusades. Also the trade growth during the Roman and Byzantine empires and the sea republics contributed to the spread of leprosy along the Mediterranean coasts and from here to Northern Europe. In Scandinavia even before the Crusades the disease was spread by the Vikings who from Byzantium, through the State of Kiev, reached the Baltic sea.

In the first centuries after Christ, in the East provinces of the Eastern Empire many leprosaria were founded. In the IVth century, near Caesarea, S.Basilus built a great leprosy hospital, while other leprosaria were built in Byzantium, Jerusalem, Jerico.

In the VIIIth century in the Western countries leprosy was an health issue , as shown by the Rotari Edict which enacted the recognition and the forced segregation of the leprosy patients who were deprived of their civil rights. These rules, influenced by the barbarian population habits who invaded the roman empire , also stated that the healthy consort could ask for the dissolution of the marriage.

In the VIIIth century Charlemagne and his father promulgated laws on the leprosy patients. The leprosy patients, banished from villages and towns, lived only on travellers' charity , isolated or grouped around crossing places.

Leprosy in Europe at the beginning of the second millennium

At the Schola Salernitana it was taught that the leprosy lesions were insensitive , hypopigmented , and that leprosy patients' voice became hoarse . These diagnosis rudiments were correct though insufficient to make early diagnoses and to avoid mistakes in the diagnosis that undoubtedly made patients affected by other pathologies to be banished from their communities as leprosy patients.

The leprosy patient was declared as such by the Church , he was dressed with a dark tunic with hat. He was given a knapsack , a stick, a small cask for the water, one pair of gloves, a cup and a little bell to ring as an identification mark.

The patient was brought to the church where an altar boy opened the ceremony wit a warning : "Mundo mortuus sis, sed Deo vivas" and he was given notice of 10 behaviour rules :

- 1) I forbid you to go into the churches or to go to the market, or to the mill, or to the bakery, or to take part in meetings .
- 2) I forbid you to wash your hands and your personal objects in any water sources or rivers.
- 3) I order you to drink water only from your cup or from another container.
- 4) I forbid you , wherever you, are , to touch what you want to buy, Use a bar or the stick to indicate what you want.
- 5) I forbid you from now on to go into public houses or taverns . If you want to buy some wine , or make sure of what you are given, you must use your cup.
- 6) I forbid you to have relations with any woman , except your wife.
- 7) 7) I order you , when you are travelling , not to reply to anybody's questions, until you go away from the road and put yourself leeward in order not to cause damage. I also forbid you to walk along narrow streets in order not to cross any other people
- 8) I order you in case you should walk along a toll road not to touch objects or any other thing without wearing gloves.
- 9) I forbid you to touch children or young people , whoever they are ,or to offer your own things to them or to others.
- 10) I forbid you from now on to eat or to drink among people , unless they are other leprosy patients . And be aware that when you die you will be buried in your home or in the church provided you obtained permission.

We understand from these 10 injunctions that at that times people thought that the leprosy infection was spread by air, by direct or indirect contact The burial in his own house or in the church dates back to the period before the spread of the leprosarum for leprosy patients, that is before XIIth century. In fact , in Middle Ages graveyards some skeletons showing typical advanced leprosy bone lesions were exhumed.in Cologne and in Copenhagen

Was the ceremony of exclusion of the leprosy patient an useless cruel practice? The Church, through this ceremony which struck everybody's imagination, was defending the community, as it's happening nowadays when the World Health Organization (WHO) issues some recommendations on disease control.

The "Death for the world" meant that the patient was deprived of property and inheritance rights and that he was exempted from any obligation towards the community and the feudatory. But the patient still had one hope left: he had "to live in God" as consecrated people who didn't own any properties.

The Christian community didn't abandon the patient. In 1048 Pope Damasus founded the "Order of the Knights of Saint Lazarus in Holy Land" dedicated to the treatment of leprosy patients. In the Western countries the first leprosaria for leprosy patients were founded in the XIIth century, marking the change from a form of charity given by individuals to a form of charity given by the community.

In 1150, in Genoa on the initiative of Buonmartino a leprosarium was founded on a piece of land donated by the town near Capo Faro (now Lanterna). The establishing act was drawn up in the Cathedral of S. Lorenzo in the presence of the Archbishop Siro. The leprosarium was run by a committee partly formed by leprosy patients, a quite usual practice in medieval leprosaria, and the rector was appointed by the leprosy patients. This right was confirmed in 1450 by a Bull of Pope Niccolò V. The "Casacce" laical confraternities, were taking care of the patients of the Saint Lazarus Hospital. In XIIIth century's Europe there were 19,000-20,000 leprosaria supported by the Christians' charity who, in addition to money donations, gave assistance to the patients. In this century the disease had reached Iceland and Greenland where no social class was spared. The patients, as source of infection, were so many that leprosy infected both poor and rich people, bishops, feudatories and kings. We can mention with respect to the medieval epidemic what WHO wrote in 1988 about the countries with endemic leprosy in the tropical region "...you can suppose that all individuals may run the same risk (of being infected)".

The increase of leprosy in medieval Europe between the XIIth and the XIIIth century coincides with the increase of commercial activities between Asia and Europe, with the crusades and with the development of towns due to the trade increase. All these factors contributed to establish the best conditions for the spread of the infection.

The structure of medieval urban agglomerates favoured the spread of infectious disease. Towns surrounded by walls, crossed by narrow alleys with water drainages and rubbish in the open air. On these basis leprosy spread very fast, also favoured by malnutrition and by the fact that the European population for the first time came in touch with the leprosy bacillus. Later autochthonous leprosy cases joined the leprosy patients imported from Eastern countries.

Between XIVth and XVth century in Europe leprosy tends to decrease and at the same time it happened the phenomenon of the "leprosy patients' concentration": leprosy cases disappear from the towns and reduce in rural foci characterized by promiscuity and lack of hygiene. To explain the decrease of medieval leprosy endemic various factors may be mentioned: the patients' isolation, the strong and fast decrease of European population after the 1347-1350 plague, the nutrition and sanitation improvement and, in particular in towns, the increase of tuberculosis.

The plague may have contributed to the decrease of leprosy by infecting mainly individuals already weakened by leprosy with a consequent decrease of infection sources. Furthermore, the fast

population decrease caused by the plague may have positively influenced the survivors' nutrition in addition to diminishing the towns overcrowding.

The factor which favours the leprosy decrease is represented by the antagonist action developed by the Mycobacterium tuberculosis against the leprosy bacillus: where tuberculosis spreads leprosy disappears. This phenomenon of antagonism is observed still today in countries with endemic leprosy. The antituberculosis vaccine, the BCG, exerts a protective action against M. leprae infection.

Leprosy at the beginning of the third millennium

The spread of leprosy went on inexorable until the 20s of this century when the most out-of-the-way islands of Oceania were reached and kept on consolidating until forty-fifty years ago, when the first results of the chemotherapy based mass campaigns appeared by stopping and then decreasing the leprosy infection.

Since the discovery of the bacillus by Hansen (1873) we need to wait for 68 years to assist to another event marking the history of leprosy in a significant way. In 1941 Faget, Director of the Hansen's Disease Centre of Carville (Louisiana – USA) utilizes Promin a drug belonging to the sulphones, which proves itself effective for the treatment of leprosy. Later, the 4,4'-diaminodiphenylsulphone is synthesized (Dapsone) which represents the active part of the sulphones.

After the second world war it was possible to organize mass campaigns based on Dapsone self-intake. In the 60's – 70's more and more numerous Dapsone-resistant bacillus strains started to appear, putting in a critical position the antileprosy campaigns based on this drug self-intake. In 1982, to obviate the Sulphone-resistance and to increase the patients' treatment acceptability, the WHO introduced the multidrug therapy in leprosy treatment, based on 2 or 3 drugs for a period of 6 or 24 months according to the forms of leprosy. That year the leprosy patients were estimated to be about 10 millions, mostly grouped in the tropical area.

The effort to introduce the multidrug therapy in all endemic regions led to an improvement of the health control system which first resulted in an increase and then in a decrease of the cases under treatment.

In 1986 the patients under treatment were 5.368.202, in 1993 decreased to 1.923.898 and in 1997 to 890.000. On January 1st 1999 the registered patients were 820.205. Today the patients are localized in 55 countries in the tropical area: 82% of them is distributed only in 5 countries: Brazil, India, Myanmar, Indonesia, Nigeria.

Compared to these data concerning the prevalence of leprosy in the world (number of leprosy patients under treatment in a given year), there is an incidence (new cases diagnosed in one year) fluctuating between 600 and 800 thousands patients, showing that the transmission chain is still active.

Why at the beginnings of the third millennium leprosy is still present? Today leprosy is concentrated in countries in the tropical region where the environment is under many aspects similar to the medieval one in Europe: unbalanced and insufficient nutrition, deteriorated life conditions characterized by promiscuity and poor sanitary conditions. In many of these countries the socio-economic situation is worsened by tribal fights, wars, the escape of whole populations looking for shelter. A leprosy control radical action, with long-term effects, need first of all a socio

economic improvement of populations living in endemic leprosy regions: it will take centuries to carry out this enormous work. Leprosy may be considered an underdevelopment index.

The WHO in its anti-leprosy strategy aimed at “sterilizing” the carrier through drug intake. This health plan based on multidrug therapy to the possible highest number of patients obtained tangible results. In 1991 the 44th World Health Assembly stated that leprosy would be eliminated by the year 2000. To eliminate leprosy meant, according to this assembly, to decrease the number of patients to 1 case per 10,000 population. The WHO to reach this goal not only increased the rhythms of anti-leprosy campaigns, but it decreased the treatment periods with the undeclared goal of eliminating more rapidly the patients from the registers. In fact the data about prevalence are drawn by WHO from the number of registered patients under treatment.-

Furthermore, the WHO abolished the post-treatment controls and microbiological examinations in order to concentrate resources on the detection of new leprosy patients. It has to be considered hazardous and doubtful the 1991's statement of the World Health Assembly which connects the disappearance of a disease to an exact date.

The disease control is in fact an extremely complex activity where unforeseeable biological phenomena intersect with as many unforeseeable human, economic and social factors. At the end of the 60's the WHO aimed at eliminating another disease: smallpox. In this case the procedure was more rational and prudent. In fact it wasn't fixed a date by which smallpox had to be eliminated but they waited for years that new cases were not detected before declaring its disappearance.

The year 2000 has come and in many regions the leprosy patients are much more than 1 per 10.000. Last months an agreement was signed between WHO, ILEP (International Leprosy) and the Pharmaceutical firm Novartis which produces the three main drugs to treat leprosy. According to the signatories of this agreement, leprosy should disappear by the year 2005.

What is today's leprosy epidemiological situation in Italy?

Since few decades ago in our country there were autoctonous leprosy foci confined in rural areas of west Liguria, Calabria, Sicily and Sardinia. Today these foci, except the calabrian one, are to be considered extinguished.

In Italy, nowadays, leprosy cases are essentially imported cases, that is: italians who lived in leprosy endemic countries or immigrants from endemic countries. Leprosy, as other infectious diseases, spreads through migration of individuals or populations. today there's no need to make long travels through the sea but in few hours, by plane, it changes from one condition resembling medieval Europe to 2000 highly industrialized regions.

In the period 1970-74, in Italy were diagnosed 50 new leprosy cases; out of these 8% were immigrants. In the period 1990-1994 the new cases were 74, 60% among immigrants and 40% italians who were infected by leprosy abroad.

In our country, leprosy control is based on the recent “Guidelines on leprosy control in Italy” published on the “Gazzetta Ufficiale” of 29th July 1999, on PRD of 21st September 1994 known as “Co-ordinating guidelines on Hansen's disease for the regions and autonomous provinces of Trento and Bolzano” and on the Bill n.31 of 24 January 1986. The PRD of 24 September 1994 gives orders at regional level to establish grassroot structures in order to facilitate the treatment of leprosy patients. Six years after its issuing not only the PRD has been enforced, but it's not even known by the regional organs.

Today leprosy is included in the 1998-2000 national health plan among “uncommon diseases” In Italy there are four National Referral Centres for Hansen’s disease located in Genoa, Acquaviva delle Fonti (Bari), Messina and Cagliari. The centre of Genoa is the arrival point of the evolution from the leprosarium founded by Buonmartino in 1150. During these eight and a half centuries, the Centre has always adapted itself to the needs as they arrived. Today, completely restructured the centre turned to the Tropical Dermatology Unit in order to conform it to the new needs of the new society characterized by a more and more increasing immigration from tropical countries.

While at the beginning of the second millennium it happened a quality jump from the banishment of the leprosy patients to the establishment of leprosaria , at the beginning of the third millennium the new therapies, not only reduced the prevalence of the disease, but they also made people consider leprosy patients like all other patients.

Acknowledgements: we thank the Associazione Italiana Amici di Raoul Follereau for making possible the change of the Centre of Genoa from a leprosarium to a Tropical Dermatology Unit.