**Class Note (30.03.20)**

**4TH SEMESTER 2020 (M.Sc. Anthropology)**

 [Course Code: ANT 403B ; Course Name: Medical Anthropology]

Topic: Epidemiology of Selected Diseases (29.3)

Lecture Topic: Leprosy: Epidemiology & Anthropology **(I)**

Leprosy, or Hansen’s disease, is known in India as *Kushtha*, is also the name used to document the disease in very early scriptures of ancient Indian civilization. No matter what it is called, leprosy is caused by a bacterium called *Mycobacterium leprae*, a microscopic germ, which is closely related to the tuberculosis bacillus. Like tuberculosis, it is transmitted through breathing—through droplets emitted by a person with an active case of the disease. Unlike tuberculosis, however, it is not highly contagious.Most people (90–95%) have a genetic immunity to leprosy, and leprosy experts generally say that prolonged and intimate contact with a contagious individual is required for a susceptible person to acquire the disease.

According to a statistics in 1991 an estimated 6 million people worldwide are infected with leprosy. Until the discovery of **AIDS** (acquired immune deficiency syndrome), leprosy was the most feared infectious disease in the world. Even today, however, leprosy’s effects still drastically change the lives of millions of people—living mainly in Asia, South America, and Africa. Brazil is the second-most affected nation, after India. According to WHO, 208619 new cases were registered in 2018. The rate of prevalence is estimated to be 0.2/10000. In 2002, the number was 763,917. Therefore, it can be said that there is certain improvement in checking the spread of leprosy.

The disease principally affects nerves and skin, with other organs of the body being affected only in late stages. Germs may be spread through coughing and sneezing. Many patients develop deformities due to nerve damage, as the disease runs its course. Contrary to popular misconceptions, leprosy does not cause limbs to fall off or flesh to rot. The bacillus does, however, damage the peripheral nerves, causing insensitivity or lack of feeling. Nerve damage is the major cause of disability associated with leprosy. The painlessness that results from nerve damage allows affected individuals to ignore cuts, burns, and other injuries sustained during everyday activities. These injuries may become infected or even **gangrenous,** and amputation is required in some cases. As a result of these deformities, patients are often isolated, affecting their social and economic well-being. The symptoms are mentioned below:

1.The most common first sign is usually a spot on the skin that may be slightly red,

darker, or **hypopigmented** (lighter in color than the rest of the skin).

2. The spot often develops **anaesthesia** (loss of sensation) and may lose hair. Some of these spots may slowly increase in size and new spots may appear on other parts of the body. Most often, spots appear on the arms, legs, or back. Skin lesions that do not heal within several weeks of an injury are a typical sign of leprosy. The order in which symptoms appear in a particular body part is not completely understood.

3. As the disease progresses, patients can develop enlarged peripheral nerves, usually near joints, such as the wrist, elbow, and knees. Next, nerves in different body parts start to be affected. If the arms are the infected limbs, part of the hand can become numb and small muscles can become paralyzed, leading to the curling of the fingers and thumb.

4. Muscle weakness, scars or lesions on body, loss of sensation from any discolored spot on the skin, and prolonged healing time for wounds are also indications that someone may be infected with leprosy bacteria.

5. Left untreated, leprosy can cause deformity, crippling, and blindness. Because the bacteria attack nerve endings, the terminal body parts (hands and feet) lose all sensations and cannot feel heat, touch, or pain, and can be easily injured. Patients end up hurting themselves—often severely—with fire, thorns, rocks, and even hot coffee cups. Left unattended, these wounds can then get further infected and cause tissue damage. Along with these injuries, fingers and toes become shortened and deformed, as the cartilage is absorbed into the body.

Depending on the number of lesions and the number of bacillus observed on a lesion smear, leprosy can be classified into two groups: 1.Tuberculoid and 2.Lepromatous.

1*.Tuberculoid:*

In this form of the disease, the skin lesions appear as light red or purplish spots. Patients usually have one or a few (normally fewer than five) hypopigmented lesions with well-defined borders. **Tuberculoid leprosy** is the more benign type, even though the nerves are affected, which leads to numbness (usually of the extremities). Tuberculoid leprosy is also known as **paucibacillary leprosy**. In this type, the nerve architecture is destroyed and there can be formation of **granulomas** in nerves. Granulomas (inflamed nodules caused by the infection) are visible at the clinical level, as asymmetric nerve enlargement near the skin lesion.

2. *Lepromatous:*

In this type, the skin lesions appear as yellow or brown nodules (protuberances), which are penetrated by many blood vessels. Usually, there are multiple, poorly defined, hypopigmentedareas that affect the mucous membranes of the eyes, nose, and throat. Multiple **papules** (nodular elevations on the skin) can appear. These are usually symmetrically distributed and tend to infiltrate (penetrate) the skin. There is a general thickening of the skin, especially on the face and ears. Patients with an

advanced form of this disease may lose eyelashes or eyebrows. When someone suffers from disfiguring facial features, this condition is known as **leonine facies**. **Lepromatous leprosy**, also called **multibacillary leprosy**, is the more easily spread of the two forms of leprosy. This more severe form produces large disfiguring nodules. The peripheral **neuropathy** (diseased state of the nerves) observed in lepromatous leprosy, causes muscle weakness and atrophy and has been associated with claw handsand foot drops.

According to WHO , the leprosy is classified into Paucibacillary (PB) and Multibacillary (MB) types. When positive skin smear is tested in any of the affected region it MB, the negative skin smear indicates PB type leprosy.

**Distribution:**

 **Region Prevalence during year 2003**

Africa 51,233 47,006

Americas 86,652 52,435

East Mediterranean 5,798 3,940

South East Asia 304,296 405,147

Western Pacific 10,449 6,190

WORLD 458,428 514,718

Source:WHO

The table shows that South East Asia is the worst hit country so far as the leprosy infected individuals are concerned. In America, Texas and Louisiana are the regions where leprosy cases occur in maximum number.

At the beginning of 2004, the number of leprosy patients under treatment in the world was around 460,000. About 515,000 new cases were detected during 2003. Among them, 43% were multibacillary cases, 12% were in children, and 3% were diagnosed with severe disabilities. During the previous two years, the global number of new cases detected had continued to decrease dramatically (a reduction of about 20% per year). Inaccessible regions and land mines make accurate reporting difficult in many areas of Angola. Poverty and lack of education also contribute to the difficulty of properly diagnosing affected patients. Angola has one doctor for every 16,152 people. (The United States, in contrast, has one doctor

for every 400 people) . A similar example of inaccessibility to patients is seen in the Philippines. According to the WHO, approximately 4,250 cases of leprosy have been registered in the Philippines. Its island geography, areas of high mountains, and deep jungles make accurate recording difficult in remote regions. Remarkably,

around 80,000 people have been cured with drug therapy in the Philippines.9 Although there are many countries with a relatively small incidence of the disease, the greater part of the global burden is now focused on the top six endemic countries: India, Brazil, Madagascar, Mozambique, Nepal, and Tanzania. The total number of cases registered in these six countries combined represents 83% of the global prevalence of the disease. The prevalence rate is 3.4 cases per 10,000 people. India alone represents around 64% of prevalence and 76% of new cases in the world.

**WHO Leprosy Eradication Strategy:**

In 2016 WHO launched its "*Global Leprosy Strategy 2016–2020: Accelerating towards a leprosy-free world*" to reinvigorate efforts for leprosy control. The strategy focuses on children as well as on avoiding disabilities.

The *Global Leprosy Strategy 2016‒2020* is structured around following 3 core pillars:

**Pillar I: Strengthen government ownership, coordination and partnership**

**Key interventions**

* Ensuring political commitment and adequate resources for leprosy programmes.
* Contributing to universal health coverage with a special focus on children, women and underserved populations including migrants and displaced people.
* Promoting partnerships with state and non-state actors and promoting intersectoral collaboration and partnerships at the international and national levels.
* Facilitating and conducting basic and operational research in all aspects of leprosy and maximize the evidence base to inform policies, strategies and activities.
* Strengthening surveillance and health information systems for programme monitoring and evaluation (including geographical information systems).

**Pillar II: Stop leprosy and its complications**

**Key interventions**

* Strengthening patient and community awareness of leprosy.
* Promoting early case detection through active case-finding (e.g. campaigns) in areas of higher endemicity and contact management.
* Ensuring prompt start of, and adherence to treatment, including working towards improved treatment regimens.
* Improving prevention and management of disabilities.
* Strengthening surveillance for antimicrobial resistance including laboratory network.
* Promoting innovative approaches for training, referrals, and sustaining expertise in leprosy, such as e-health.
* Promoting interventions for the prevention of infection and disease.

**Pillar III: Stop discrimination and promote inclusion**

**Key interventions**

* Promoting societal inclusion by addressing all forms of discrimination and stigma.
* Empowering persons affected by leprosy and strengthening their capacity to participate actively in leprosy services.
* Involving communities in actions for improvement of leprosy services.
* Promoting coalition-building among persons affected by leprosy and encourage the integration of these coalitions and/or their members with other community-based organizations.
* Promoting access to social and financial support services, for example to facilitate income generation, for persons affected by leprosy and their families.
* Supporting community-based rehabilitation for people with leprosy-related disabilities.
* Working towards abolishing discriminatory laws and promote policies facilitating inclusion of persons affected by leprosy.

**Bibliography**

Bandyopadhyay, Sumahan, 2017. Book Review .( *Leprosy and a Life in South India– Journeys with a Tamil Brahmin*; James Staples; Lexington Books; Lanham; 2014.i-xxxi +171 pages, ISBN 978-0-7391-8734-0. HB).  *J. Indian Anthrop. Soc.* 52: 198-199

Buckingham, Jane,2002. *Leprosy in Colonial South India – Medicine and Confinement.* New York: Palgrave.

Edmond, Rod, 2006. *Leprosy and Empire – A Medical and Cultural History*. Cambridge: Cambridge University Press.

Leung, Angela Ki Che, 2009. *Leprosy in China – A History*. New York: Columbia University Press.

Sehgal, Alfica,2006. *Leprosy.* Philadelphia: Chelsea House Publishers

Staples, James, 2014. *Leprosy and a Life in South India– Journeys with a Tamil Brahmin*. Lanham: Lexington Books

**TO BE CONTINUED…**