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# Etiology and Pathogenesis of West Nile Virus

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## ABSTRACT

**West Nile Virus of Flaviviridae family was isolated in 1973 in Uganda before a wide story of its diffusion in all the world. This paper has the purpose to uptodate its story since Italy Healthcare is still talking only to bite trasmission by fly and not at all the infected blood.**

**Keywords:** virus, etiology, pathogenesis, vaccine, West Nile Virus.

## INTRODUCTION

In human life few changes have been so important as those relating to health care and the virtual elimination of a whole range of infectious diseases. Early diagnosis and the application of advanced technologies have contributed to prolung the human existence. It is the purpose of the medicine not only to fight the biological pathologies, but also to improve human capacities, essentially to normalize and optimize. Obviously the medicine is affected by the economy and the policy of the society of which is part and follows its guidelines (1).

## METHODS

Purpose of this paper is to discuss meaning and importance of etio-pathogenesis in Internal Medicine. Mechanism for development of the pathologic damage are studies by pathogenesis: they may act directly (by toxic or lytic cell damage), as indirectly, by means of immune reactions or of cellular proliferation. Inflammation causes injury to cells, also until necrosis, but sometimes also transformations, inducing tumoral proliferation. Immune reactions also include many disorders, going from allergy to idiosyncrasy, but also to congenital and acquired immunodeficiencies and rheumatic diseases. The cause of diesease is discussed in etiology; single factors are often responsible, but multiple factors are also sometimes involved, as in rehumatoid arthritis. Etiology may however be also still unknown (2)!

Etiology are often less known than pathogenetic mechanisms, but they are always a main guide in medicine, especially in infectious and in endocrine diseases.

## RESULTS

West Nile Virus (family Flaviviridae, genus Flavivirus), first isolated in 1937 in the West Nile district of Uganda, has had historically a wide geographic distribution in Africa, Asia, the Middle East and Europe (3).

The first cases of West Nile Virus disease were recognized in New York in 1999, and since then the epidemic has spread, infecting 400,000 Americans by 2002. At the beginning of the epidemic, the risk of virus transmission through transfusion was one case per 5,000 donations.

The peak rate of viremic blood units reached 10–15 per 10,000, with an estimated 380 infected donations made during the week of persistent viremia in 2002, representing 5% of potential blood donors with West Nile Virus infection (4).

However, since the mid-1990s, outbreaks of neurologic disease in humans and horses, with an increase in death rates, may have marked the evolution of a new West Nile Virus variant (5).

Fortunately, the introduction of nucleic acid tests for identifying the agent immediately after transmission has reduced the risk of infection from the virus (3.2 per 10,000 donations). This premise made it possible to test donated blood samples for West Nile virus by detecting viral RNA. Already in the first week of August 2003, approximately 1.1 million donations were tested with this new test, and 163 were found positive. In the state of Nebraska, with the highest incidence of the West Nile Virus epidemic in 2002, the test for viral ribonucleic acid was applied and found to have an incidence of 1 case in 45 donors, also in the first week of August 2003. This obviously promoted the removal of infected blood units (6).

The virus was first recognized in the Western Hemisphere during an epizootic among birds and horses and a human encephalitis outbreak in the New Yourk City area in 1999 (7).

## DISCUSSION

The first cases of West Nile Virus disease were recognized in New York in 1999, and since then the epidemic has spread, infecting 400,000 Americans by 2002.

It was quickly realized that the primary route of transmission was blood, through transfusions and blood products. The causative agent was soon identified as a member of the Arborviridae: Arborvirus WNF (West Nile Fever Virus).

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## CONLUSIONS

Finally, I want to say that this is not a new disease, but one that has been studied for some time, obviously known in Africa. Although linked to mosquitoes, it is presumably not a novelty, nor even a disease to be concerned about, since it comes from a geographical area that has contributed so much to humanity in terms of knowledge, including the pustular lesions on

mummies, obviously linked to smallpox, and the source of variolation vaccination dating back to before Jenner's discovery of the smallpox vaccine (14-16).

In conclusion, they want once again to terrorize the population with a new epidemic that has been under control for some time, as our African friends and those who still manage to reason with health communications well know. These communications are neither new nor represent an imminent epidemiological threat, because they are already known and controlled (17,18).

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