

RDIS: The Rabies Disease Information System

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Abstract:

Rabies is a deadly viral disease causing acute inflammation or encephalitis of the brain in human beings and other mammals. Therefore, it is of interest to collect information related to the disease from several sources including known literature databases for further analysis and interpretation. Hence, we describe the development of a database called the Rabies Disease Information System (RDIS) for this purpose. The online database describes the etiology, epidemiology, pathogenesis and pathology of the disease using diagrammatic representations. It provides information on several carriers of the rabies viruses like dog, bat, fox and civet, and their distributions around the world. Information related to the urban and sylvatic cycles of transmission of the virus is also made available. The database also contains information related to available diagnostic methods and vaccines for human and other animals. This information is of use to medical, veterinary and paramedical practitioners, students, researchers, pet owners, animal lovers, livestock handlers, travelers and many others.

Availability: The database is available for free <http://rabies.mscwbif.org/home.html>

Key words: Rabies Disease Information System, encephalitis, epidemiology, pathogenesis, pathology, diagnostic methods and vaccines.

Background:

Symptoms of Rabies may begin with fever and tingling at the site of exposure, followed by violent movements, fear of water, an inability to move parts of the body, and loss of consciousness [1]. Exhibition of symptoms customarily leads to death the death of the affected individual. The KEGG Pathway database describes the progression and pathogenesis of various metabolic, genetic, cellular, environmental, infectious diseases of animals as well as human beings [2]. However, a specific information platform describing the rabies disease is yet not available [3]. Therefore, it is of interest to collect information related to the disease from several sources including known literature databases for further analysis and interpretation.

While hundreds of articles describe rabies on various aspects of the disease, a dedicated information system for this disease would be of much use to the research community and the common people. Across the world, the 28th of September is celebrated as a day dedicated to create awareness with regard to Rabies.

Methodology:

Construction

The database was developed using HTML (Hyper-Text Markup Language) as Front-end, utilizing of MySQL (My Structure Query Language) for storing Data as Back End and employing of Perl CGI to link the scripts and view the output from the Database. We used Artisteer 4.3 (Trial mode) for windows for designing the web pages. The web database is developed with links to (a) Home; (b) Etiology, (c) Pathway, (d) Diagnosis, (e) Vaccine, (f) External links, and (g) Contact Us. **Figures (1 & 2).**

Content:

Disease data

Complete information pertaining to the Rabies virus, and its related viruses, their classification, epidemiology [4], including various carriers of the virus and the various modes of transmission of the disease has been described in detail. The pathogenesis [5, 6] and pathology [7, 8, 9] of the disease right from the entry of the organism has been diagrammatically portrayed, such that it is easy to understand and analyze.

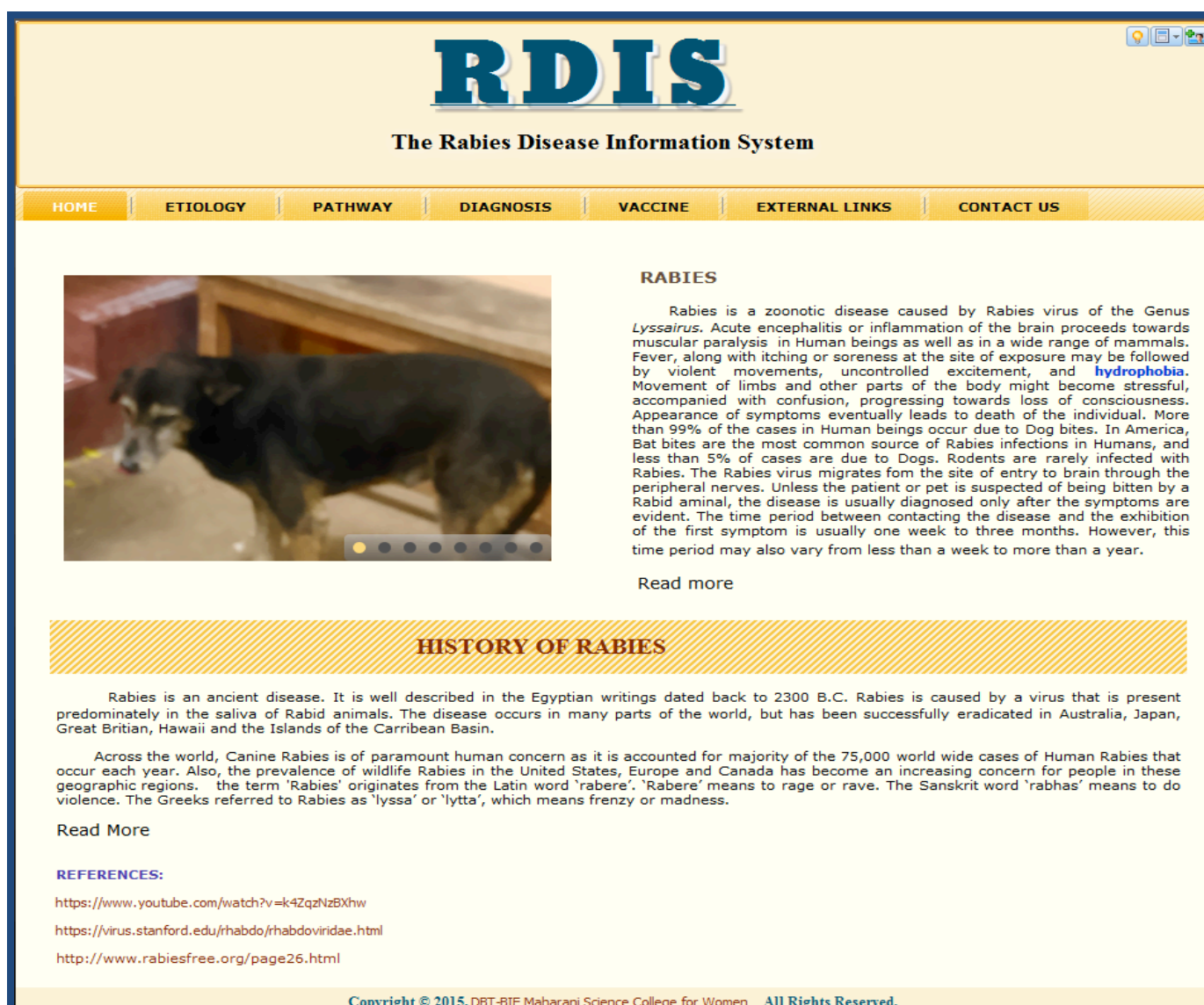


Figure 1: A screen shot of the RDIS website.

Prevention, Diagnosis and Prognosis

Various vaccines available for the prevention of the disease, and preventive measures and prognosis of the disease have been elaborately discussed in the database. The latest diagnostic tools and their applications in the diagnosis of the disease, methods available for the isolation and identification of viruses and virus particles have also been listed in the database.

Utility:

Rabies causes at least 70,000 Human deaths worldwide per year. A database for information related to the disease is not yet available. Awareness with regards to the type of vaccination and precautionary measures is useful for prevention, diagnosis, prognosis, treatment and cure. The website is of use for pet owners, livestock handlers, veterinarians, medical practitioners and those predisposed to the disease and seeking information about countermeasures available for the diseases. The website contains counsel for those susceptible to the disease and probing the existing pre bite and post bite vaccination schedules.

Type of Information

The database includes a brief description of the disease, and its outcome [10]. Rabies, being a disease of the Central Nervous System, causes typical nervous symptoms including disorientation, convulsions, hydrophobia, paralysis and coma. It also contains an introduction to the history of the ancient disease. The database contains information related disease etiology [11-15], genome data, disease map [16], diagnosis [17-21] and available vaccines [22-24].

Availability and Requirements

Project name: The Rabies Disease Information System; Project home page: <http://rabiespathway.mscwbif.org/home.html>
 Operating system(s): Platform independent; Programming language: PERL CGI; Other requirements: Internet Explorer 7 or higher, Google Chrome, Mozilla Firefox; Restrictions to use by non-academics: Copyright © 2015, DBT-BIF Maharani Science College for Women, Bangalore, India. All Rights

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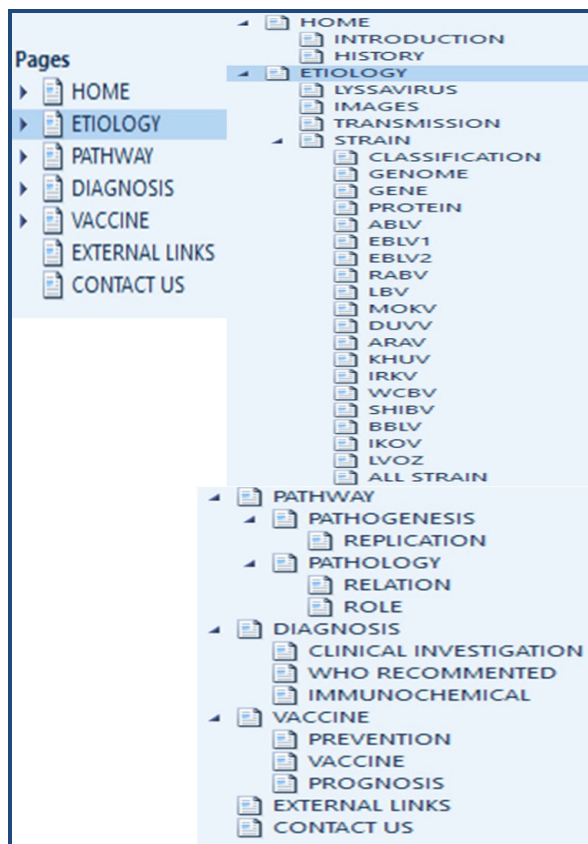


Figure 2: Pages included in the website, along with their corresponding subpages.

Future Plan

We plan to update the database regularly as and when more information with regard to the disease is available.

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