STUDY ON EPIDEMIOLOGICAL PROFILE OF DOG BITTEN CHILDREN & KNOWLEDGE, ATTITUDE AND PRACTICE ABOUT RABIES, PRE AND POST EXPOSURE PROPHYLAXIS AND SIDE EFFECT OF PURIFIED VERO CELL RABIES VACCINE

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CERTIFICATE

This is to certify that the dissertation titled "**STUDY ON EPIDEMIOLOGICAL PROFILE OF DOG BITTEN CHILDREN & KNOWLEDGE, ATTITUDE AND PRACTICE ABOUT RABIES, PRE AND POST EXPOSURE PROPHYLAXIS AND SIDE EFFECT OF PURIFIED VEROCELL RABIES VACCINE"** of **Dr. P. RAM KUMAR** in partial fulfillment of the requirements for **M.D. Branch – VII (Paediatrics)** Examination of the Tamilnadu Dr. M.G.R. Medical University to be held in February 2006. The period of study was from October 2004 to September 2005.

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DECLARATION

I, **Dr. P. RAM KUMAR** solemnly declare that dissertation titled, "**STUDY ON EPIDEMIOLOGICAL PROFILE OF DOG BITTEN CHILDREN & KNOWLEDGE, ATTITUDE AND PRACTICE ABOUT RABIES, PRE AND POST EXPOSURE PROPHYLAXIS AND SIDE EFFECT OF PURIFIED VEROCELL RABIES VACCINE"** is a bonafide work done by me at Institute of Social Paediatrics, Govt. Stanley Medical College & Hospital during October 2004 to September 2005 under the guidance and supervision of our Director **Prof. DR. T.K. VASANTHAMALLIGA, M.D., D.C.H.**.

The dissertation is submitted to Tamilnadu, Dr. M.G.R. Medical University, towards partial fulfilment of requirement for the award of **M.D. Degree (Branch – VII) in Paediatrics.**

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CONTENTS

INTRODUCTION

Rabies has been ecognized from very ancient times as a disease transmitted to humans and animals by the bite of “mad dogs”. The term rabies comes from the Latin word rabidus, meaning mad, derived from the Sanskrit root rabhas, for frevazy.

Rabies also known as hydrophobiais an acute, highly fatal viral diseases of the central nervous system caused by Rhabdoverue. It is primarily a zoonetri disease of warm blooded animals, particularly caruivorous such as dogs, cats, jackals and wolves. The view is usually animal. Although the number of human cases is small, rabies is a major public health problem because it is widespread among animal reservoirs.

Rabies is practically a 100% fatal diseases. Thee are only 3 recorded survivors till date who recovered full intensive life support and excellent nursing care. However, rabies is preventable with wound care, modern vaccines and sera (Immunoglobulins).

AIM OF THE STUDY

- To study the epidemiology of dog bitten children
- To study the knowledge, attitude, practice regarding rabies and first aid to dog bite.
- To study the knowledge, attitude and practice regarding rabies vaccination.
- To study the side effects of rabies vaccination.

LITERATURE REVIEW

In the study conducted in IDH Research Centre, Kasali between 1986 to 1989. Adult male (55%), boys (37.5%), Adult Female (5%), Girls (2.5%) are affected with rabies infectious diseases.

In a study conducted in Hospital in Delhi in 1988, Significantly higher number of children are affected, more males affected than females.

In the same study 44.7% are bitten in lower limbs, 37.4% are bitten in upper limb, 9.7% bitten head and neck.

Only 20 of the 206 cases received correct wound care. 3 of the 206 cases applied oil or red chilly.

In a study conducted in infectious diseases, Delhi in 1999, 36.7% dogbite victims are 5-14 year old. Male : Female Ratio 4:1 93.4% didn't Receive any local wound care.

(Indian Journal of Paediatrics 2004, Sep. 15; 71; 217-220.

55.2%, 30.7%, 2.1% and 12% persons had bites on lower limb, upper limb, chest and back and head & neck respectively.

In a study conducted in S.E. Asian countries. Dog bite prevalence is 200-800 / 1,000,000.

80% of dog bite victims have bite site pains and parasthesia 50% of dog bige victims have paraesthesia / pain at the bite site and it is a specific sign of rabies.

Only 3 cases are long time survivors of rabies.

18% of FRE roaming healthy dogs have antirabies antibody.

Only one case of person to person contact of rabies affected baby bitten the parent and she developed rabies reported in British Medical Journal.

In the study conducted in S.N. Hospital, Agra from 15.12.1970 to 15.5.1971 Class II bite is 82.2%, Class III (12.9%).

Local wound treatment reduce rabies by 80%.

Dog bite 2nd most common cause of emergency room injuries.

In the study conducted in VSG Hospital, Ahamedabad, 1978 – 1979 publisehd in Journal of Indian Medical Association, April 1981, Vol.76, NO.748, 134-136, 38.1% are in age group 5-15 male to female

ratio 3.3:1, bite in lower limb is 72.3%, upper limb 23%, 2.3% get rabies per 1000. Maximum dog bite in November – January.

In one study in I.D.H., Delhi in 1999, 78% of the victims didn't know about the rate of the Dog 9% Dog killed, 7% Dog died.

REGIONAL DISTRIBUTION

23.8% fromurban, 76.2% from Rural population are affected.

SEVERITY OF EXPOSURE

72.5% Class II, 27.5% Class II.

Journal of Indian Medical Association, Sep. 1983; 81; 69-74. In this study conducted in IDH Calcutta from 1979-1980. 35.4$ are in 1-10 years. 71.7/ male and 22.3% female affected. 5.5% are due to pet dogs and 94.5% due to stray dogs. Culcutta in 1977 had 1.42 lac stray dog.

In the study conducted from January 1982 – June 1983 in Institute of Child Health, on 758 children. Male female Ratio is 2:1, 55% in 7-10 28% 4-6, 26% 1-3, 9% 10-12 2% < 1 yr. 78% by pet dog, 22% by street dogs bite inlower limb is 51% upper limb 31%, face 14% . 95% dog alive, 5% untraceable, 4% killed.

HISTORICAL REVIEW

References to rabies occurs in the Mesopotamian laws of Esthunna (Circa 2200 BC). The causative agent of rabies had for centuries been associated with the saliva of rabid dogs but it was only is 1804 that Zinke adduted proof by transmitting the disease be normal dogs by the inoculation of saliva from rabid dogs.

In 1821, Megendie and Breschet infected dogs with saliva from a human patient. Providng the identity of the agen causing the human and animal rabies. In a series of study dating from 1881, Pasteur established that the rabies varies was present in the brain of infected animals. By serial intracerebral passage in rabbits, he obtained the fixed virus and demonstrated that dogs can be rendered mimic by a series of injection of fixed virus of graded infectivity. This vaccine was prepared by drying for various periods, pieces of spinal cord from rabbits infected with the fixed view. In July 1885, Joseph Meister, a 9 year old boy bitten by a rabid dog was given a course of B innoculatasis of the infected cord vaccine by Pasteur. The boy survived. This dramatic went was a milestone in the development of medicine.

Other historical key events that contributed to the control of human rabies.

- Dev. Of human rabies vaccine – 1885
- Discovery of negribody – 1903
- Use of rabies vaccine for dogs – 1940
- The addition of rabies immuno globilins to human post exposure vaccinatin Rx – 1954
- Growth of rabies virus in cultured cells – 1958.
- Development of diagnostic fluorescent antibody test – 1959.

CHAPTER II

EPIDEMIOLOGY

Rabies is a viral zoonosis and carnivores such as foxes and raccoons, as well as many bat species, are wildlife hosts of the rabies virus in nature. Globally, in terms of human disease dogs represent the most important reservoir. Infection of humans usually follows bites by rabid animals and is almost invariably fatal once signs of disease occur. More than 2.5 thousand million people live in regions where rabies is endemic. It is estimated that each year at least 50 000 people die from rabies, and more than 10 million receive post-exposure vaccination against this disease. Children aged 5–15 years are at particular risk. More than 99% of all human deaths from rabies occur in Africa, Asia and South America; India alone reports 30 000 deaths annually.

In about 100 countries, rabies is enzootic in both wild and domestic animals and poses a potential threat to a considerable proportion of the more-than 2.5 thousand million people living in these areas. Some island states such as Iceland, Japan and the United Kingdom, and European states such as Belgium, Finland, France,

Greece, Norway, Portugal, Spain, Sweden and Switzerland, are now considered free of rabies.

Among human infections, rabies is believed to be the tenth most common cause of death. Once clinical symptoms have occurred, the disease is almost invariably fatal. However, reporting is often incomplete and the estimated 50 000 deaths per year may be an underestimate. Asia accounts for more than 90% of all rabies fatalities. India alone reports 30 000 deaths per year, i.e. an annual incidence of approximately 3 deaths per 100 000 population. Annual incidences of 0.01–0.2 deaths per 100 000 are reported from Latin America. In Africa, 0.001–13 deaths per 100 000 are reported, but rabies is grossly underreported in many countries.

Although all age groups are susceptible, rabies is most common in people aged under 15 years, with 30%–50% of post-exposure treatments given to children aged 5–14 years, the majority being male. The most severe injuries such as multiple head and/or neck bites have the shortest incubation period and tend to occur in the youngest children. Since many of these exposures are never reported, it is likely that there is a high proportion of young children dying from undiagnosed rabies.

MICROBIOLOGY OF RABIES

Rabies virus belongs to the genus *Lyssavirus* within the family *Rhabdoviridae.* The genus *Lyssavirus* includes seven types, of which type 1 represents the classic rabies virus.

The rabies virus is bullet-shaped and measures approximately 180 x 75 nm. The RNA genome encodes five proteins: the glycoprotein (G) is the primary structural component of the surface spikes embedded in the viral envelope and is associated with the smaller M protein. Enclosed by the host-cell derived envelope is an infectious viral core of nucleocapsid (N) proteins, thus encapsidating the viral genome and the RNA polymerase. The NS protein is associated with the nucleocapsid.

Rabies virus is stable between pH 3 and pH 11 and may survive for many years at –70 °C or when freeze-dried and kept at 0 – 4°C. It is rapidly inactivated by desiccation, UV and X-ray exposure, sunlight, trypsin, b-propiolactone, ether and detergents.

Protective immune response

In natural infection, rabies virus is largely unavailable to the immune system and the immune response is usually slow. Thus, there is a delayed antibody response to both the G and N protein and the number of natural killer cells are in general reduced, implying deficits of

immune recognition or activation. Furthermore, in patients with paralytic rabies, lymphocyte proliferation seems to be impaired.

Following vaccination with modern cell-derived rabies vaccines, a prompt and highly protective antibody response is elicited. Immunity is believed to depend mainly upon the CD4+ T-cell dependent neutralizing antibody response to the G protein. Also, cell-mediated immunity has long been recognized as an important part of the defence against rabies. Cells presenting fragments of the G protein are the targets of cytotoxic T-cells and the N protein induces T-helper cells.

PATHOLOGY AND PATHOPHYSIOLOGY

Rabies is an infection initially of wild and then domestic animals, which is spread to humans by bites, contact with mucosal membranes, and (to a much lesser extent) aerosol inhalation in bat caves. Most infections (90%) are transmitted via domestic animals (cats and dogs), mainly due to their closer association with humans.

Almost all transmissions are via bites. As the virus is excreted in saliva, infection can occasionally occur via scratches infected with saliva, though the infection rate is 50 times lower.[10] Human to human

transmission has not been recorded, with the exception of six iatrogenic cases resulting from corneal graft implants

Airborne transmission is thought to have occurred in two men who inhaled virus aerosols generated in caves inhabited by rabid bats, and in a laboratory worker who became infected while rabid sheep brains were being ground for vaccine production

The virus may be shed in breast milk, and there has been at least one suspected case of transmission from a mother to a breastfed infant.[13] Transplacental infection occurs in animals but has not been reported in humans. A number of women with rabies encephalitis are known to have delivered healthy babies.

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Pathophysiology

After a bite, the virus replicates in muscle cells close to the site of the bite and then ascends to the central nervous system via the peripheral

nerves. On reaching the central nervous system, there is massive viral replication on membranes within neurones. It is then transmitted directly across synapses into efferent nerves, and is deposited in almost every body tissue, including the autonomic nervous system via neural networks. It is at this stage that productive viral replication occurs with budding, particularly in the salivary glands, in preparation for the infection of other mammals.

The incubation period from bite to disease varies widely, but is usually between 30 and 90 days. Antigenic analysis has confirmed incubation periods of up to 7 years,[14] although this is exceptional. Bites on the head and neck have a shorter incubation period (sometimes even as short as 15 days) compared with those on the trunk and lower extremities, due to the decreased length and greater number of neurones.

RABIES VACCINES

More than 100 years ago, Louis Pasteur and his colleagues developed the first crude rabies vaccine based on attenuated virus from desiccated nerve tissue. Unfortunately, the majority of post-exposure immunizations against rabies are still performed with vaccines of crude nerve tissue origin. Although continuously improved over the years, inactivated vaccines produced in sheep or goat brains (Semple) or

suckling mouse brain (Fuenzalida) may be associated with serious adverse events. Possible post-vaccinal neurological reactions may include meningoencephalitis, meningoencephalomyelitis, mononeuritis multiplex, dorsolumbar transverse myelitis and ascending paralysis of the Landry type, usually occurring between one and two weeks after the first injection. With the Semple-type vaccines, the incidence of neurological reactions varies between 1 in 200 and 1 in 1600 recipients, with a lethality of up to 14%. Vaccines of the Fuenzalida type are associated with neurological complications in about 1 in 8000 to 1 in 27 000 courses. Furthermore, in terms of protective potency these vaccines are inferior to modern cell-derived vaccines. A complete post-exposure treatment using nerve tissue vaccines involves a prolonged and painful immunization course of up to 23 injections. Obviously, these vaccines are not recommended for pre-exposure immunization.

The human diploid cell rabies vaccine was introduced in 1967 and is regarded as the gold standard for rabies vaccines. However, the more recently developed and less expensive purified chick embryo cell vaccine and purified Vero cell rabies vaccine have comparable characteristics. They are all lyophilized and must be reconstituted. The potency of all cell-derived vaccines is assessed using a National

Institutes of Health test and the WHO requirement is a potency of at least 2.5 IU per intramuscular dose.

Human diploid cell rabies vaccines are based on the Pitman-Moore L503 strain or, in one case, the Flury strain of rabies virus. Human diploid cell rabies vaccines have been given to more than 1.5 million people worldwide. Its protective efficacy in situations of heavy exposure has been shown in the Islamic Republic of Iran where none of 45 persons who received post-exposure treatment with this vaccine developed rabies following severe bites by rabid dogs or wolves.

The purified Vero cell rabies vaccine contains the Wistar strain of the virus, but with the Vero cell line as substrate. Clinical studies with the purified Vero cell vaccine show neutralizing antibody responses both after primary and secondary immunizations that are fully comparable to those seen after vaccination with the human diploid cell vaccines. In Thailand, post-exposure treatment using purified Vero cell vaccine and rabies immune globulin has been shown to be protective.

Purified chick embryo cell rabies vaccine is prepared from inactivated rabies virus of the Flury LEP-25 strain. No clinically important differences were observed when this vaccine was evaluated together with human diploid cell vaccines in studies on post-exposure

protection of animals and humans and in pre-exposure immunogenicity studies. More than 30 million doses of the purified chick embryo cell vaccine have been administered worldwide.

Purified duck embryo rabies vaccine showed similar qualities to the other cell-derived rabies vaccines, but is no longer manufactured.

Despite applying potent, modern, cell-derived vaccines, about one "failure" in 1 million post-exposure treatments does occur. Careful analyses show that such failures are almost always associated with severe lesions on or near the head and/or inappropriate administration of the treatment.

There are no contraindications to any of these vaccines being used for post-exposure treatment. Should an allergic reaction occur, the modern vaccines of different cell substrate origin may replace each other. Pregnancy is not a contraindication to post-exposure treatment.

Although associated with mild and transient reactions, all the cell-derived rabies vaccines are considered safe. With human diploid cell vaccines, which are most thoroughly investigated, pain, erythema and swelling or itching at the injection site occur among 30%–74% of the recipients. Systemic reactions involving headache, nausea,

abdominal pain, muscle aches or dizziness are reported among 5%–40% of vaccinees, and allergic oedema in 0.1%. One study reports fever among 3.6% of recipients of the human diploid cell vaccine. Systemic allergic reactions characterized by generalized urticaria accompanied in some cases by arthralgia, angiooedema, fever, nausea and vomiting have been reported. They are uncommon in persons receiving primary vaccination, but have occurred in up to 6% of persons receiving a booster dose, with onset after 2–21 days. These reactions have been shown to follow the development of IgE antibodies to b-propiolactone altered human serum albumin in the vaccine (b-propiolactone is used as an inactivating agent). According to the manufacturers of purified Vero cell rabies vaccine and purified chick embryo cell vaccine, allergic reactions are very rare after both primary and booster doses with these vaccines. Studies on the purified Vero cell rabies vaccine report local and general reactions in 10.6% of post-exposure treatment patients and complaints of mild to moderate reactions in 7%. Also, among intradermal or intramuscular recipients of this vaccine, low-grade fever was the only significant systemic event, occurring in 8% of all subjects and most frequently following intramuscular vaccination. In the same study, pruritus at the injection site was the only significant local reaction. Among 88 healthy adults receiving a total of 292 doses of

purified chick embryo cell vaccine, 16.4% reported local side-effects, whereas 15.1% reported general symptoms.

Other cell-derived vaccines are available on a national scale only. For example, in the United States the Kissling rabies strain has been adapted to replication in lung fibroblasts of fetal rhesus monkeys. The resulting vaccine, which is given according to the same pre- and post-exposure schedules as the human diploid cell vaccine, is considered equally effective and may less often cause allergic reactions. In Japan, a vaccine type similar to the purified chick embryo cell vaccine, but based on the Flury HEP strain, has reached limited distribution. A primary hamster kidney-cell rabies vaccine is mainly used in China where it was licensed in 1989. Each year more than 5 million doses of this vaccine are administered in China, where it has now completely replaced the Semple-type rabies vaccine.

PRE EXPOSURE PROPHYLAXIS

Pre-exposure vaccination may be performed with any of the modern cell-derived vaccines and is recommended for anyone at increased risk of exposure to rabies virus. Traditionally, this recommendation includes laboratory staff, veterinarians, animal handlers, wildlife officers with frequent exposure to potentially infected

animals as well as visitors to highly rabies-enzootic areas who may be exposed to rabies hosts. However, according to age-stratified studies of incidence, those at greatest risk are probably children living in rabies-enzootic regions of the developing world.

The pre-exposure schedule requires intramuscular doses of 1 ml or 0.5 ml, depending on the vaccine type, given on days 0, 7 and 28. Major vaccine manufacturers recommend one booster dose after one year, and to ensure protection in persons at continued risk, booster vaccinations every five years, or ideally, at intervals dictated by regular testing for antirabies antibodies (titres >0.5 IU/ml required for protection). On the other hand, studies with the human diploid cell vaccine and the purified Vero cell rabies vaccine have shown that 10 years after a pre-exposure series followed by a single booster dose after one year, more than 96% of the vaccinees still have neutralizing antibodies against rabies virus.

CLINICAL FEATURES OF RABIES

SYMPTOMS AND SIGNS

The viral prodrome is non-specific and, particularly in areas where the virus is rare, the diagnosis is often made late. In many

patients, the first symptom is itching, pain, or paraesthesia at the site of a healed bite wound. Prodromal symptoms then develop, including fevers, myalgia, headache, irritability, depression, and upper airway or gastrointestinal symptoms

PRODROMAL SYMPTOMS OF RABIES

- Itching, pain, or parasthesia at site of bite wound
- Fevers
- Myalgia
- Headache
- Irritability or depression
- Gastrointestinal upset
- Radiculopathy in bitten limb
- Proceeding to encephalopathy

Furious rabies

This is the more common presentation. It manifests as irritability, agitation, and hyperaesthesia. Reported abnormalities include cranial nerve lesions, upper motor neurone lesions, and autonomic disturbances (disorders of blood pressure, hypersalivation, and sweating). The pathognomonic symptom of hydrophobia is a triad of inspiratory muscle

spasm, painful laryngospasm, and terror (fear of swallowing). It initially occurs when trying to drink water but eventually can occur with the slightest stimulus or even at the mention of water. In its most severe form, the reflex can be provoked simply by drafts, at which point it is known as aerophobia. This reflex is combined with extension of the back and arms and may even end in a generalised convulsion, or cardiorespiratory arrest. Without supportive treatment, approximately one third of patients will die within the first few days of a hydrophobic spasm. The rest will proceed to a generalised flaccid paralysis and rarely survive more than a week without intensive care support. Even with such support, the disease is fatal within months, with very few reported cases of survival. In one report, all survivors had been given pre-exposure vaccination and post-exposure prophylaxis.[15] Limited recovery is often a more appropriate term than survival, as survivors will have long term neurological deficits.

DIFFERENTIAL DIAGNOSIS OF FURIOUS RABIES

- Delerium tremens
- Botulism
- Diphtheria
- Drug ingestion (phenothiazines and amphetamines)

- Plant ingestion (*Datura fastuosa*)
- Tetanus

Paralytic rabies

Accounting for under 20% of human cases, paralytic rabies tends to follow either bites from vampire bats[16] or bites in people who have received pre-exposure vaccination. After the usual prodrome, a flaccid paralysis develops, usually in the bitten limb, which ascends (either symmetrically or asymmetrically) with pain and fasciculation in the affected muscles. There is often mild sensory disturbance. Paraplegia and sphincter disturbances follow, until eventually a fatal paralysis of the respiratory and deglutive muscles occur. Hydrophobia is rare but may be noted as a few spasms of the laryngeal muscles in the terminal phase. These patients may survive for up to 30 days without ITU support.

DIFFERENTIAL DIAGNOSIS OF PARALYTIC RABIES

- Guillain-Barré syndrome
- Polio
- Herpes simiae encephalitis
- Arbovirus encephalitis

Laboratory diagnosis

There are two main avenues available in making the diagnosis. Firstly, the offending animal should be captured if possible. Brain biopsy provides samples of brain tissue, which can then be examined, and rabies antigen can be detected within a few hours by direct immunofluorescence or PCR. If the animal is not overtly "rabid", it can be observed for a period of 10 days. At any sign of infection or deterioration, the animal should be killed and the brain tested. Animals behaving strangely should be killed and examined as soon as possible after the bite or exposure.

In a patient presenting with suspected rabies, demonstration of viral RNA by PCR or viral antigen in skin biopsies allows the earliest diagnosis (immunofluorescence highlights it in nerve twiglets). An alternative source for investigation is corneal scrapings; however, this site is not as sensitive as a neck skin biopsy. Rabies antibodies are not usually detectable in CSF or serum until the eighth day of illness in unvaccinated patients,[18] and in most cases of rabies, patients have died before an antibody response is detectable. A peripheral neutrophil leucocytosis is common in the early stages of the disease, but is not particularly helpful in reaching the diagnosis.

A recent series in France compared the sensitivies of the various tests in a premorbid situation. They all showed a high specificity approaching 100%.[19] As is evident from these values, none of the tests have a high sensitivity and thus a high degree of clinical suspicion is needed, rather than relying on a negative result.

The laboratory diagnosis of rabies pre-mortem has always been difficult, but PCR has improved the sensitivity of the tests on skin snips and saliva. Another new technique involves the inoculation of saliva into mice, which can then be examined with PCR to confirm the diagnosis.

Once rabies symptoms have developed, treatment itself is mainly supportive, as the outlook is dismal. Patients must be heavily sedated in order to control their pain and terror. The mainstay of treatment is intensive care support, including paralysis, sedation, and ventilation. Ketamine has been suggested as an appropriate agent for this purpose.[15] Antiserum, antiviral agents, interferon, corticosteroids, and other immunosuppressants have all proved useless.

Pre-exposure vaccination

Pre-exposure vaccination carries some degree of protection for the individual. It does not aim to provide full immunity, but does

provide extra protection to allow the bitten individual time to seek administration of immunoglobulin and/or further vaccination. Pre-exposure vaccination is currently offered to those at risk of infection, either occupationally or through travel.

Currently, the course involves three doses of tissue culture vaccine given into the deltoid on days 0, 3, and 28. The seroconversion rate is 98.2%.[23,24] Antibody levels need not be checked unless the patient is at particularly high risk of infection (for example, rabies laboratory staff). Otherwise, boosters can be given between 6 and 24 months to prolong protection.[24] Currently the recommendation for vaccination includes those at risk occupationally and those intending to travel to rabies endemic areas for periods of more than 30 days.[25]

By far the best means of prevention is to avoid coming into contact with rabid animals, and education for travellers to how to avoid a dangerous bite is central to prevention. Precautions include wearing long trousers, ignoring free roaming cats and dogs, and the immediate washing of wounds.

Wound treatment

The rabies virus is easily killed by sunlight, soap, and drying. Wound care is central to the prevention of rabies infection. In experimental animals, rabies transmission can be almost completely prevented by local wound treatment given within the first 3 hours after exposure, adequate wound cleaning can greatly reduce the risks of infection.

Where possible, wound care should include infiltration with local anaesthetic. The wound should then be thoroughly scrubbed with water and either iodine solution, 40–70% alcohol, or quaternary ammonium compounds (cetrimide 0.1% BPC), all of which have a proven lethal effect on the rabies virus.

During wound care, the edges of the wound must be scrubbed and any puncture wound must be cleaned thoroughly including the deepest parts. After scrubbing, the wound should be thoroughly rinsed with saline and covered with a simple dressing. Appropriate antibiotics should be used if indicated.

Post-exposure prophylaxis involves a multifaceted approach combining wound care, passive treatment with immunoglobulin, and active vaccination.

The aim of post-exposure prophylaxis is to neutralise inoculated virus before it can enter the nervous system of the patient. Although time is of the essence, there is a definite window of up to 2 hours before detrimental effects ensue.

POST EXPOSURE PROPHYLAXIS

The indication for post-exposure vaccination with or without rabies immune globulin depends on the type of contact with the rabid animal. Types of contact are:

Category I

Touching or feeding animals, licks on the skin; category II - nibbling of uncovered skin, minor scratches or abrasions without bleeding, licks on broken skin;

Category II

Single or multiple transdermal bites or scratches, contamination of mucous membrane with saliva from licks. For category I no treatment is required, whereas for category II immediate vaccination and for

Category III

Immediate vaccination and administration of rabies immune globulin are recommended in addition to immediate washing and flushing of all bite wounds and scratches. Depending on vaccine type, the post-exposure schedule prescribes intramuscular doses of 1 ml or 0.5 ml given as four to five doses over four weeks. For rabies-exposed patients who have previously undergone complete pre-exposure vaccination or post-exposure treatment with cell-derived rabies vaccines, two intramuscular doses of a cell-derived vaccine separated by three days are sufficient. Rabies immune globulin treatment is not necessary in such cases. The same rules apply to persons vaccinated against rabies who have demonstrated neutralizing antibody titres of at least 0.5 IU/ml.

Passive immunisation

This is achieved using human rabies immunoglobulin (HRIG) which functions by neutralizing the rabies virus both locally and systemically within the first week prior to the body's own response to the vaccine. HRIG also appears to enhance the patient's T cell response to the vaccine. The initial dose of immunoglobulin is 20 IU/kg body weight,[26] which should be infiltrated around the wound site as much as is anatomically feasible, the remainder being injected intramuscularly

into an area as far as possible from the vaccination site. If HRIG is unavailable, WHO recommendations are to use equine immunoglobulin at a dose of 40 IU/kg. Technically immunoglobulin should be given in all previously unvaccinated cases but it is especially important in those identified as at severe risk of infection (particularly head and neck wounds or multiple deep bites). Hypersensitivity reactions will occur in between 1 and 6% of individuals, and resuscitation equipment must be available at all times.

Unfortunately the HRIG is very expensive,[27] and as such is not often available in the third world countries that carry the highest risk rabid animal injuries. Equine or ovine rabies immunoglobulin may be available, but they carry an allergic risk.

Fully vaccinated patients should receive a booster vaccine on days 0 and 3, into the deltoid muscle[28]; this site has been shown to produce the best antibody titre available. Unvaccinated patients should receive doses on days 0, 3, 7, 14 and 28. The full course need not be given in the ED, but adequate arrangements must be made for follow up with the general practitioner.

Patients given the current vaccine reported approximately 30–74% levels of pain, swelling, erythema, and itching around the injection

site.[27] Systemic reactions such as headache, nausea, and abdominal pains were reported in 5–40% of recipients, most commonly in those patients receiving more frequent boosters. The overall anaphylaxis rates is 0.1%.[29]

In those patients currently taking immunosuppressive medications, these should be discontinued if at all possible to improve the immune response to the vaccine. Pregnancy is not a contraindication to giving either the vaccine or immunoglobulin, and the vaccine dosage is the same for children and adults.

MANAGEMENT OF HUMAN RABIES

Once rabies symptoms have developed, treatment itself is mainly supportive, as the outlook is dismal. Patients must be heavily sedated in order to control their pain and terror. The mainstay of treatment is intensive care support, including paralysis, sedation, and ventilation. Ketamine has been suggested as an appropriate agent for this purpose.[15] Antiserum, antiviral agents, interferon, corticosteroids, and other immunosuppressants have all proved useless.

Three patients have been documented as surviving rabies infection.[22] All had some degree of pre-exposure or post-exposure

prophylaxis and lengthy stays in the intensive therapy unit to control other complications, including electrolyte disturbances, cardiac failure, raised intracranial pressure, convulsions, and hyperpyrexia. They have usually been left with neurological deficits.[15]

MATERIALS AND METHODS

STUDY DESIGN :

- Prospective and descriptive study

STUDY PLACE :

- Institute of Social Paediatrics,

  Govt. Stanley Medical College and Hospital,

  Chennai-600 001.

STUDY PERIOD :

- October 2004 – September 2005.

SAMPLE SIZE :

- 1450 cases

INCLUSION CRITERIA

All the children bitten by the dog who attended the OP during the study period are included in our study.

EXCLUSION CRITERIA

All the other animal bites admitted for the purpose of antirabies vaccine are excluded from our study. Children suffering from major health illness are excluded from our study.

METHODOLOGY

Using proforma every caretaker and children are interviewed separately in examination room to keep the secrecy of questions.

Only after completing all the proformas caretakers are briefed about the queries they ask out the DOs and DON'Ts about dog bite and rabies vaccination.

DOG BITE WOUND CLASSIFICATION

Dog Bite wound are classified according to severity of the wound according to WHO recommendation.

SEVERITY	TYPE OF CONTACT
Category I	Touching (or) Feeding of animals licks on Intact Skin
Category II	Nibbling of uncovered skin, minor scratches or abrasions without bleeding Licks on Broken skin
Category III	Single or multiple transdermal bites or scratches Lick on the mucous membrane.

RABIES VACCINATION

Administration of purified inactivated rabies vaccine, prepared on verocells containing

Freeze dried rabies vaccine (Wistar Strain Rabies PM / WI 38-1503-3M)

Produced on verocell line, inactivated and purified.

Such that > 2.5 IU before and after heating for 1 month at $37^{o}C$

Maltose – upto 1 immunising dose

Human plasma albumin upto 1 immunising dose.

Diluents 0.4% sodium chloride solution 0.5ml.

Administered by Residential interns in Upper Arm in Deltoid or Middle Thigh is monitored for development of any immediate side effects.

OBSERVATION AND RESULTS

This study on epidemiology of Dog Bitten Children, knowledge, attitude and practice regarding rabies, first aid to dog bite and rabies vaccination and rabies vaccine side effects was conducted on dog bitten children admitted in dog bite ward in Jawaharlal Nehru Institute of Social Pediatric under Stanley Medical College during the period of 6.10.04 to 6.9.05.

Average number of dog bitten children administered antirabies vaccine during this study period is 25.1%. Out of 3,80,000 children attended OP during this study period 1,450 children are dog bitten 1 out of 262 children attend OP for dog bite i.e. dog bite incidence is 0.4%.

Using stratified random sampling technique children are interview in our prospective study.

Proposing test is used for all statistical analysis.

AGE DISTRUBTION OF DOG BITTEN CHILDREN

Age Group	Dog Bitten Children	Percentage
0-3 year	213	15%
4-6 year	389	27%
7-0 year	391	27%
10-12 year	457	31%

There is significantly decreased incidence of dog bite in the 0-3 age group.($P<0.001$)

SEX DISTRIBUTION OF DOG BITTEN CHILDREN

Sex	No. of Cases	Percentage
Male	973	67%
Female	477	32%
Total	1450	100%

There is increased incidence in male child.

REGIONAL DISTRIBUTION OF DOG BITTEN CHILDREN

1334 (92%) Children bitten by dog hail from urban and 116 (8%) coming from rural areas. More urban children bitten by dog probably as we done the study in urban hospital.

SOCIO ECONOMIC DISTRIBUTION OF DOG BITTEN CHILDREN

754(52%) Children admitted in dog bite ward belong to class IV of modified Kuppusamy Socio Economic Scale. 464(32%) children belong to class V, 232(16%) children belong to class III No children admitted from class I & II.

FAMILY TYPE DISTRIBUTION OF DOG BITTEN CHILDREN

1160(80%) Children are reared in nuclear family.

290(20%) Children are from joint family.

Significantly lower number of joint family children are bitten by dog.

(P<0.001, Z-32.3 difference 60%. Diff 60% (CI 57-63).

PLACE DISTRIBUTION OF DOG BITE

870 (60%) Children are bitten by the dog in street.

580 (40%) Children are bitten in home

Significant number of children are bitten in street than home (P<0.001) Z=10.7. Diff. 20% (CI 16-24).

TIME DISTRIBUTION OF DOG BITE

1044 (72%) Children are bitten by the dog in night.

406(28%) Children are bitten in day time.

Using proportion test significant number of children are bitten by the dog in night, than daytime (P0.001, Z 23.7 difference 44%, 95% CI (41-47).

ACTIVITY DISTRIBUTION DURING DOG BITE

754 (52%) Children are bitten by dog when the children walk or play in the street.

464 (32%) Children bitten while they play with the dog.

174(12%) Children are bitten during feeding the dog.

58(4%) Children are bitten while they are eating.

Significant no of children are bitten by dog when they walk /play in the street or playing with the dog.

DOG BITE SITE DISTRIBUTION.

696 (48%) Children dog bites in lower limb.

580 (40%) Children dog bites in upper limb.

116 (8%) Children dog bites in Head and Neck.

58 (4%) Children dog bite in Chest and Abdomen.

Significant number of children are bitten in upper limbs and lower limb than head & neck and trunk.

DOG TYPE DISTRIBUTION

Type of Dog	No. of Children	Percentage
Stray	870	60%
Pet	580	40%

870(60%) Children are bitten by stray dogs.

580(40%) Children are bitten by per dogs.

Significant number of children are bitten by stray dog than pet dog (P<0.001, Z10.7, difference 20% CI-16-24).

DOG VACCINATION STATUS

Vaccination Status of the Dog	No. of Children	Percentage
Vaccinated Dog	232	16%
Non-Vaccinated Dog	1218	84%

232(16%) Children are bitten by vaccinated dog.

1218(84%) Children are bitten by unvaccinated / dogs whose vaccine status not known.

Significant number of children are bitten by unvaccinated dog than vaccinated dog. (P,0.001, Z-36.6, Difference 68%, C.I. 65-71).

DOG BITE CATEGORY DISTRIBUTION OF DOG BITTEN CHILDREN

753(52%) of children had class III dog bite.

697(48%) children sustain class II dog bite.

VACCINE SIDE EFFECTS

Local side Effects	Systemic Side Effects like Fever and Myalgia	Systemic Allergic Reaction
14(0.96%)	29(2%)	1(0.0689%)

14Children (0.96%) developed local side effects at the vaccination site like Pain, Erythema and Tenderness.

29Children (2%) developed mild systemic side effects like fever.

1 Child (0.0689%) developed systemic allergic reaction in the form of urticaria and fever.

KNOWLEDGE, ATTITUDE AND PRACTICE STUDY ON

RABIES

	Yes	**No**	**Statistical Analysis**
Rabies is fatal	1218	232	P0.001 Z30.6 Diff. 68%
Even Dog Scratch is Dangerous	638	812	P.001 Z=6.4 Diff. 12%
Even Puppy Dog Bite is Dangerous	1044	406	P0.001 Z=23.7 Diff.44%
Even Vaccinated Pet Dog Bite is Dangerous	464 (32%)	986	P.001 Z=19.3 Diff. 36%
Native Medicine is enough for Dog Bite	348 (24%)	1102	P.001 Z=27.9 Diff. 52%
Fate of the Dog	406 (38%0	1044	P.001 Z=23.7 Diff. 44

Care takers with adequate knowledge, good attitude and correct practice

1218 caretakers know Rabies is fatal.

638 caretakers know even dog scratch could be dangerous.

1044 caretakers known that puppy bite could be dangerous.

464 caretakers known that even vaccinated pet dog bite could be dangerous.

1102 caretakers know that native medicine alone is not enough for dog bite.

406 caretakers observe the dog.

WRONG (OR) INADEQUATE KNOWLEDGE ATTITUDE AND PRACTICE.

	Yes	No	P	Z	Difference (C I)
First Aid Knowledge	406 (28%)	1044(72%)	<0.001	23.7	44% (44-41)
First Aid Practice	232(16%)	1218(84%)	P<0.001	36.6	68% (65-71)
Even Scratch Need Vaccination	580(40%)	870(60%)	P<0.001	10.7	20% (16-24)
Pre Exposure Prophylaxis	290(20%)	1160(80%)	P<0.001	32.3	60% (57-63)
Food Restriction and change in daily activity of living	1102(76%)	348(24%)	P<0.001	27.9	52% (49-50)

232 caretakers did not know that rabies is fatal.

812 caretakers did not know even rabid dog scratch can be dangerous.

406 caretakers did not know even puppy bite can be dangerous.

986 caretakers did not know even pet dog bite can be dangerous.

348 caretakers presume that native medicine alone is enough for dog bite.

1044 caretakers chased away the dog or killed the dog or don’t know the fate of the dog.

Knowledge attitude and practice study on pre & Post exposure prophylaxis

ADEQUATE KNOWLEDGE ATTITUDE AND PRACTICE ON PRE AND POST EXPOSURE PROPHYLAXIS

Only 406 caretakers (28%) have correct first aid knowledge.

Only 232 caretakers (16%) practiced first aid correctly.

Only 580 caretakers (40%) know that even scratch need vaccination.

Only 290 caretakers (20%) know about pre exposure prophylaxis.

Only 348 caretakers (24%) did not impost any food restriction on change in daily activity of living.

WRONG OR INADEQUATE KNOWLEDGE, ATTITUDE AND PRACTICE ON PRE AND POST EXPOSURE PROPHYLAXIS

1044 caretakers (72%) did not have correct first aid knowledge.

1218 caretakers (84%) practiced wrong first aid like applying madar juice, lime.

870 caretakers (60%) do not know that even scratch need vaccination .

1160 caretakers (80%) do not know about pre exposure prophylaxis.

1102 caretakers (76%) impose food restriction and change in daily activity of living like not consuming EGG and non-veg. Change in daily activity of living like not taking head bath during vaccination course.

DISCUSSION

General incidence of dog bite is 0.5% (South East Journal of Tropical Medicine 1998; 19;563-9).

In our study the incidence is 0.4%

AGE GROUP DISTRIBUTION OF DOG BITTEN CHILDREN

There is increased incidence in school children in 5-12 age group in a study conducted in infection diseases hospital in 1997 published in Indian Journal of Practical Pediatrics ; 2004; Sep-15, 71, (217-220).

In the study conducted in institute of child health, Chennai by Dr. Parthasarathy et. Al. from 1982-1983, published in Indian pediatrics, 1984 July-Vol 21-549-554.

In ICH study age distribution is

Age	Dog Bite Incidence
<1	2%
1-3	26%
4-6	28%
7-10	35%
11-12	9%

In our study the age distribution is

Age Group	Incidence	Percentage
0-3	213	15
4-6	389	27
7-9	391	27
10-12	457	31

Increased incidence of Dog Bite as the age increases because the children's increased play and activity as the age progress more so in age group of 10,11,12 years as they walk alone without care takers to School, Tuition, Shop and their interest in out door games.

Significantly low incidence of dog bite in infants and toddlers of 0-3 years age groups because they stay mostly in home, always watched by caretakers as they are dependant for most their daily activity of living.

SEX DISTRIBUTION OF DOG BITTEN CHILDREN

In our study more number 67% of boys are bitten by dogs than girls (32.9%).

In the study conducted in Infectious Disease Hospital, Delhi, in 1999 published in Indian Journal of Practical Pediatrics 2004, 9;15;

71,(217-30) Male to Female Ratio is 4:1 But it is conducted in all patients but our study is specific to children < 12 years

In the study conducted in pediatric age group in Institute of Child Health during January - 82 to June 83, Male to female ratio is 2:1.

Significant no of boys sustain dog bite because they are more interested in outdoor play and activity.

REGIONAL DISTRIBNUTION OF DOG BITTEN CHILDREN

More number of urban children (92%) are dog bitten than rural children (8%)as we conducted in urban hospital.

SOCIO ECONOMIC DISTRIBUTION OF DOG BITTEN CHILDREN

52% class IV children, 32% class V children and 16% class III children are dog bitten. There is no class I & II children because they are not admitted in dog bite ward as free ARV is given for whose monthly income is less than Rs.1000. More class IV and class V are admitted because of their poor socio-economic environment and their caretakers illiteracy.

TYPE OF FAMILY DISTRIBUTION OF DOG BITTEN CHILDREN

80% of Dog bitten children hail from nuclear family.

20% of dog bitten children are from joint family.

Significantly decreased number of joint family children are bitten by dog as there is more number of care takers are available to watch the children.

PLACE DISTRIBUTION OF DOG BITTEN CHILDREN

Dog bite occur more in street (60%) than home (40%). There is less change of dog bite in home because there will be care taker in home. Dog bite is more by stray dogs as per our study and many other studies so dog bite occurs more in street than home.

TIME DISTRIBUTION OF DOG BITE

72% of children are bitten by dog in night 6 pm – 6 am than by day (28%) between 6 am – 6 pm. As there is more chance of children play in the evening or walking in the street for tuition or shopping.

ACTIVITY AT BITE DISTRIBUTION

52% children are bitten by dog when the children walk or play in the street.

32% children are bitten when they play with the dog.

12% children are bitten while feeding the dog.

4% of children are bitten while the children are eating the food.

Significantly more number of children are bitten by the dog while they walk or play in the street as they are easily accessible to street dogs and moving or running away from dog which provoke the dog to bite.

DOG BITE ANATOMICAL DISTRIBUTION

In our study more number of children are bitten in lower limb 48% , upper limb 40%, compared to head & neck (8%) and chest & abdomen (4%).

In a study in Infectious Disease Hospital, Delhi, published in Indian Journal of Practical Pediatrics 2004, 9.15, 71, (217-220) 55.2%, 30.7%, 2.1%, 12% bitten in lower limb, upper limb, chest & back and head & neck.

Face is the target in 70% of children one study in U.S. (America Academy of Pediatrics 15;4:2001) where pet dog bite is more common than stray dog. So children got head & neck bite when they play with the pet dogs.

In various Indian studies and also in out study lower limb sustained significant dog bite because in India stray dog population is more than pet dog and also lower limb is in easy reach for stray dog when they chase the children.

TYPE OF DOG DISTRIBUTION

In our study significant number of children are bitten by stray dogs (60%) than per dogs (40%) are as there is more number of stray dogs to pet dogs.

In the study conducted Infectious Diseases Hospital, Calcutta from January 1974 Dec. 1980 Published in Journal of Indian Medial Association – Vol – 81; 69-74, stray dogs bite is 94.5% pet dog bite is 5.5%.

DOG VACCINATION STATUS DISTRIBUTION

More number of children are bitten by unvaccinated or vaccination status not known dogs (16%) than vaccinated dogs (84%) as it is not a rule or mandatory to vaccinate the pet dog in India.

In India, government or any voluntary organization does not do vaccination of stray dog.

DOG BITE CATEGORY DISTRIBUTION

In out study 52% children sustained category III and 48% sustained category II dog bite wound.

In the study conducted in rabies research center at Central Rabies Institute, Casauli from 1986-1989 by Dr. S.N.Madhusudhanan et.al. published in Journal of Indian Medical Association 1992, Vol-90, 169-

171, 27.5% of the study group sustained class II bite, 72.5% sustained class II bite

VACCINE SIDE EFFECTS

In out study using purified Vero cell culture vaccine, few a mild systemic side effects 2% and mild local side effects 1% and 1 case of systemic allergic reaction occurred no major side effects or death occurred due to vaccine side effects.

In the study published in Journal of allergy using human diploid cell culture vaccine in 1987;80;861-8.

Mild local side effects are – 30 – 70%.

Moderate side effects are – 5 – 40%.

Study on purified vero cell vaccine indicate mild to moderate side effects 2-7% local or general side effects 5-10%.

KNOWLEDGE ATTITUDE AND PRACTICE STUDY ABOUT RABIES.

16% caretakers did not know that rabies is fatal.

56% did not know that scratch by dog is dangerous.

28% unaware that even puppy bite is harmful.

68% do not know that even vaccinated pet dog bite is dangerous.

76% wrongly believe that native medicine alone is enough for dog bite.

Only 28% know that the dog has to be observed not to be killed or chased away.

As evidenced by out study low knowledge and poor attitude and wrong practices about dog bite is prevalent due to illiteracy and ignorance as caretakers of our study group is 32% illiterate, 52% are primary school level.

KNOWLEDGE ATTITUDE AND PRACTICE STUDY ON PRE AND POST EXPOSURE

72% care takers don't have first aid knowledge.

84% practice wrong first aids like madar juice, lime application.

In the study conducted Infectious Diseases Hospital, Calcutta between 1986-1989 published in Journal of Medical Associations, Vol-90, No 7, July 1992 by madusudhana et.al only 7% received correct first aid.

In our study 60% don't know that even scratch need vaccination.

80% don't know about pre exposure prophlaxis.

76% impose unnecessary food restriction of avoiding EGG, non Vegetarian food, change in daily activity of living like not applying oil, not taking head bath after dog bite.

Low level of knowledge, poor attitude and wrong practices can be corrected by information, education and councelling by health workers, anganwadis, teachers, NGO's and Government employees.

SUMMARY

Dog bite occur more in children of age group 4-12 years (67%), from class IV (52%), class V (32%) socio economic group, 80% from nuclear families, more in the streets (60%) than home (40%), more in the night (72%) than day time (28%) more during walk or play in street (52%) more in lower limb (48%) and upper limb (40%) more by stray dogs (60%) than pet dog (40%) of which (84%) of the dogs are un vaccinated. And the children sustained dog bite category III (52%) category II (48%).

Purified vero-cell culture rabies vaccine side effects are Mild Local side effects are 1%, mild General side effects are 2%.

16% care takers don's know that rabies is fatal 56% don't know even dog scratch is dangerous 28% don't know even puppy bite can be harmful, 68% don't know even vaccinated pet dog bite is dangerous 76% presume that native medicine alone is enough only 28% care takers observed the dog.

72% care takers did not have first aid knowledge 84% have strong first aid practices 60% did not know that even scratch need vaccination 80% do not know about pre exposure prophylaxis 76% impose unnecessary food restriction and change in daily activity of living.

CONCLUSIONS

Rabies remains the 10th commonest cause of death due to infection and dog bite is the second most common injury. Dog bite pre valance is 200 – 800 / 1,00,000. In India 3 people die of rabies per 1,00,000. Of which pediatric age group comprises 44%.

Even after the development of the safe third generation rabies vaccine with few mild side effect and no major side effect and easy availability of these rabies vaccines at free of cost in all the government hospitals and government Medical Colleges still rabies death occur.

In our study increased incidence (67%) is in the age group (4-12) due to their play or walking alone in the streets (60%) by un vaccinated (84%) stray dogs (60%) more in the night time (72%) more in the extremities (88%) more from the nuclear families (80%).

It can be prevented by keeping the children in home in night away from stray dogs, train them not to run away from dog or go to them with out stretched hand, more than one care takers watching the children.

Urgent need to control stray dog population by castration. Vaccinating 80% of stray gods will stop the virus multiplication in environment.

Poor knowledge wrong attitude towards rabies as such and neglect of dog bite due to puppies, vaccinated pet dogs, scratches by dogs, practice of native medicines and application of madar juice, lime to dog bite wound can be changed with information through media, education through school and counseling by health care providers.

The importance of observation of dog for 10 days after bite, knowledge about first aid and correct practice of first aid of simple soap wash for 10 minutes itself prevent 80% rabies.

Knowledge about pre exposure prophylaxis of pet handlers which can be made mandatory and vaccination even for scratch or vaccinated pet dog bite and puppies bite, prevention of food restriction and changes in daily activity of living can be done by advertisement information by media, education through conventional and non- conventional teaching and counseling by health care providers, teachers, anganwadi workers and non government organization, government employees which are all available and accessible to every rural or urban population or India.

KEY TO THE MASTER CHART

Sex :
1 Male
2 Female

Regional distribution of dog bitten children :
1 Rural
2 Urban

Socio-economic Class
III, IV, V, (Modified Kuppusamy Socioeconomic Scale)

Family Type :
1 Nuclear
2 Joint

Place of Dog Bite
1 Home
2 Street

Time of Dog Bite
1 Day
2 Night

Activity at bite
1 Play in the street
2 Feeding the dog
3 Eating
4 Play with the dog

Site of Dog bite
1 Upper limb
2 Head and neck
3 Trunk
4 Lower limb

Type of Dog
1 Stray
2 Pet

Vaccination status of the dog
1 Vaccinated
2 Un-vaccinated

Category of Bite
2 Class II
3 Class III

Side effects of Rabies Vaccine :
1 Mild local
2 Mild Systemic
3 Systemic allergic

Rabies is fatal
1 Yes
2 No

Scratches Fatal :
1 Yes
2 No

Puppy bite is fatal
1 Yes
2 No

Vaccinated pet dog bite is fatal :
1 Yes
2 No

Even scratch need vaccination :
1 Yes
2 No

Pre-exposure prophylaxis :
1 Yes
2 No
Native medicine is enough for dog bite :
1 Yes
2 No

Fate of the Dog :
1) Observed
2) Killed / Chased away / now known

First Aid knowledge : 1) Present 2) Absent

First aid practice : 1) Correct 2) Not correct
Food Restriction and change in daily activity of living is necessary
1) Yes 2) No

PROFORMA
EPIDEMIOLOGICAL PROFILE OF DOG BITE VICTIM

Name :

Age :

Sex : M / F

Residential Address :

Place : Rural / Urban

Socio-Economic Status :

	Father	Mother
Education		
Occupation		
Income		

Socio-Economic Scale : I / II / III / IV / V

Type of Family : Nuclear / Joint

Dog Bite at : Home/Street

Time of Dog Bite at : Day (6am-6pm) / Night (6am-6pm)

What the child did : Play in the street / Feeding / Eating / Play with the dog at the time of bite

Where did the dog bite : Upper Limb / Head & Neck / Trunk / Lower limb

Type of Dog : Pet / Stray

Vaccination status of the Dog : Vaccinated / Unvaccinated

Type of Dog Bite : I / II / III

KNOWLEDGE, ATTITUDE & PRACTICE STUDY ABOUT RABIES AND

PRE AND POST EXPOSURE PROPHYLAXIS

1)	Rabies is fatal	:	Yes / No
2)	Even Scratch is dangerous	:	Yes / No
3)	Even puppy bite is dangerous	:	Yes / No
4)	Even vaccinated healthy pet dog bite is dangerous	:	Yes / No
5)	Even Scratch Needs vaccination	:	Yes / No
6)	Do you know about vaccine for pet rearers	:	Yes /No
7)	Native treatment is enough for rabies	:	Yes / No
8)	What did you done after dog bitten you	:	Observed / Killed or chased away
9)	What is the first aid measure to be given after dog bite	:	Correct / Not correct
10)	First aid given after dog bite is	:	Correct / Incorrect
11)	Is food restriction and change in daily Activity of living is necessary.	:	Yes / No