INTERVENTION PROGRAMME TO INCREASE KNOWLEDGE OF LASSA FEVER PREVENTION AMONG HEALTH WORKERS AND PATIENTS IN LILY HOSPITAL, OREDO, BENIN CITY,

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BEING A REPORT OF PRECEPTORSHIP PROGRAMME PRESENTED TO THE DEPARTMENT OF HEALTH, SAFETY AND ENVIRONMENTAL EDUCATION, FACULTY OF EDUCATION,

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CERTIFICATION

We, the undersigned, certify that this work was carried out by ORUKE JUDE in the Department of Health, Safety and Environmental Education (HSE), Faculty of Education, University of Benin, Benin City, Nigeria

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DEDICATION

This report is dedicated to God Almighty, the giver of success, and my mum, Mrs. Victoria Okhuoya.

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My profound gratitude goes to God almighty for his marvelous love, kindness, mercies and peace upon my life all through the period of this programme.

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PART ONE

INTRODUCTION

BACKGROUND TO THE STUDY

THE PRECEPTORSHIP PROGRAMME

The preceptorship programme was an intervention to increase the knowledge of Lassa fever prevention among health workers and patients in lily hospital at Oredo Local Government Area, Benin city, Edo State. Nigeria

On getting approval from the department to carry out the preceptorship programmed in lily hospital, the researcher moved to the preceptorship programmed area.
The researcher got an introductory letter from the Department of Health, Safety and Environmental Education, University of Benin which was submitted to the chief medical officer at lily hospital and was approved by the director.

SCOPE OF THE PROGRAMME

The preceptorship programmed was carried out for a period of one academic session, from August to November 2019. The Researcher worked three days a week (Tuesday, Thursday and Friday) and spent an average of four to six hours a day in the hospital.

OBJECTIVES OF THE PRECEPTORSHIP PROGRAMME

The objective of the preceptorship programme was to design an intervention programme that will help increase the awareness and knowledge of Lassa fever among health workers and patients in lily hospital at Oredo, which will eventually lead to elimination or reduction of the risk and complications of Lassa fever, thus reducing the morbidity and mortality associated with Lassa virus among infected with the virus.

However, the specific objectives set to achieve the identified goals are as follows:

- To identify an issue of health concern.
- To work closely with the health personnel on ground to assess their previous efforts towards increasing the awareness and knowledge of Lassa fever among health workers and patients in the hospital
- To educate the patients of the danger attached to Lassa fever virus and the possible way to obviate it.
- To sensitize and educate the patients on the need for prompt treatment of signs associated with Lassa fever in their body in order to avoid further complications.
- To design an intervention aimed at possibly mitigating or reversing the issues identified
- Implement the methods designed for the intervention &
- Evaluate the executed intervention.

SERVICES RENDERED

At the hospital, the researcher observed the activities and health talks given by the healthcare providers in various units such as:

- Records
- Immunization unit
- Antenatal unit
- Laboratory unit
- X – ray unit

DESCRIPTION OF STUDY AREA

The study was conducted at lily hospital, lily hospital is located at boundary/ airport road opposite ITV glass house, Oredo Local Government Area, Benin City, Edo State.

Oredo is a Local Government Area of Edo State, Nigeria. It headquarters is in Benin City. Benin city also remain the capital city of the Benin Empire. The Oba Of Benin Omo' Oba Erediauwa palace is also located here and many historic palaces and buildings are located in this city. Oredo is home to many including the Oba of Benin Omo Noba NedoUku Akpolokpolo Oba Erediauwa, Chief Sam Igbe who also is the Iyase of Benin Kingdom late Chief Engineer Ima Igiehon, who was the Obaghayomwn of Benin Kingdom, Chief Gabriel Osawaru Igbinedion the Esama of Benin Kingdom, Prince Adun Akenzua and many other prominent princes and chiefs. The people living in this area are predominantly Bini and People from other tribes. The inhabitants of this community engage in different jobs. Some are farmers, businessmen and women, traders, Civil servants and so on. Oredo LGA is renowned for some strategic industries, Banks and major markets which include ring road and New Benin market. It has an area of 249 km² and a population of 374,671 at the 2006 census (Wikipedia).

Lily hospital has a staff strength of 56 workers. The various Health services offered includes.

- Maternity care/ Nutritional Counseling and General health care
- Routine immunization to babies within the ages of 0-59 months under the National Programme on Immunization (NPL) coverage.
- Birth control/Family planning
- Prenatal diagnosis, HIV Testing/Counseling and treatment
- Screening and treatment of common diseases.
- Treatment of accident patients and different diseases
- Scanning and X-ray services
- Laboratory services.
- Consultancy and general hospital services

PROGRAMME COMPONENTS

1. **Assessment:** In the assessment of the previous efforts towards combating Lassa fever virus infection, the researcher sought to find answers to the following salient questions:
   i. How often does patient complain of Lassa fever virus infection?
   ii. Is there any treatment recommended for them?
   iii. When was the last time the health personnel called all the patients together to adequately sensitize them on Lassa fever virus infection?
   iv. Do the health personnel carryout health talk on the community?
2. **Implementation:** The second component of the intervention programme is the implementation of activities designed as a result of the information gathered from the assessment of previous activities of other health personnel. The activities include:
   i. Checking the treatment file of patients on Lassa fever virus infection to determine their rate of complaints
   ii. Calling patients whose treatment file shows that they have missed their appointment to ask them their reasons for not meeting up with their appointment and encouraging them to come.
   iii. Giving one on one counseling to newly diagnosed patients about Lassa fever diseases and the safety major to be taken in other for them to remain healthy.

iv. Mobilizing both new and old patients to sensitize them on etiquette to be taken in other to avert Lassa fever virus infection.

3. **Evaluation:** After the successful implement, the last component taken was evaluation. In order to ensure effective outcome from the implementation, three forms of evaluation were employed thus:

i. Formative Evaluation: The intervention programme was evaluated at the implementation state in order to ensure that the activities being implemented are in line with the objectives

ii. Process Evaluation: The intervention programme was evaluated while the intervention programme was taking place to improve the quality and delivery of the intervention programme.

iii. Summative Evaluation: At the end of the intervention programme, another form of evaluation was carried out to find out if the activities implemented were able to realize the stated objectives

PART TWO

INITIAL ACTIVITIES DURING THE PRECEPTORSHIP PROGRAMME

During the preceptorship programme, it was observed that there was a transient knowledge of Lassa fever as a patients presented with a fever of about 38.5^{o}c (degrees Celsius) and similar symptoms of Lassa fever, it's become worrisome and stigma as health personnel and patients feared been in contact with the suspected patient until the sample was taken for further diagnosis.

It was on this regard, the researcher decided to broaden their knowledge on Lassa fever, its mode of transmission, causative agent, clinical feature, sign and symptoms and the possible way to obviate it

ACTIVITIES CARRIED OUT TO IDENTIFY THE PROBLEM

1) Review of Records: The researcher went through several records kept by the laboratory unit. The records files include:
   i. Diagnostic register: This register contains the names of previous and present patients that have been diagnose of communicable diseases, it's also contained the types and the severity.
   ii. Treatment register: This register contains the names of previous and present patients that have received or are still receiving treatment in the hospital. It also contains their age, status, weight, address and occupation.
   iii. Treatment file: This contains information about the patients individually. This simply means that each of the patients has a treatment file. Also, it is the treatment file that indicates whether the patient has been adhering to his/her recommended treatment / medication. This is because each day that the patients come to the health center, it is the duty of the health care

provider to mark it in their treatment file. Finally, the patients' phone number and that of their treatment supporter is also written in the treatment file in case of any emergency.

2) Interview**:** The researcher had the opportunity to talk one on one with some health workers and the patients several times. This was done in order to know their thoughts, knowledge and beliefs about Lassa fever viruses.

3) Observation: The researcher made some observations while at the hospital to augment the interview and record assessment. Observations made were centered on finding out how the health personnel and the patients interacted with each other and whether the right information was being passed along to the patients.

PART THREE.

THE PROBLEMS AS SEEN ON SITE

The researcher through investigations was able to observe among others, the following problems:

- From the records, it was observed that some of the patients have general weakness, malaise, headache, sore throat, muscle pains, chest pain, abdominal pain, cough and diarrhea. etc.
- Records also revealed that there was inadequate trained health staff to monitor and follow up the patients in their daily health status.
- Some of the patients had not been sensitized on the danger of Lassa fever viruses' diseases and its mode of transmission, due to this, they find it difficult to adhere to recommended control measures of Lassa fever.
- Some health heath workers were not aware of the danger of Lassa fever diseases hence recognized all forms of diseases as malaria as same prescription is usually given
- From observation, the researcher noticed that whenever a case has been presented, there was a careless means of attending to patients as some of the staff come in contact with patients without personal protective equipment (PPE)

INTERVIEW QUESTION

Some of the interview questions asked to the health's personnel and patients in lily hospital in other to access their level of knowledge concerning Lassa fever include.

- The research took out time to interview them of the causes of Lassa fever and how it can be avoided. This was done to evaluate the level of their knowledge towards Lassa fever and to educate them

- The researcher also asked if they can identity the rodent responsible for the causes of Lassa fever and the possible way to avoid this rodent from coming into with our food stuffs

- The researcher asked if they have come in contacted with someone infected with Lassa fever virus, this was done to know if they have concrete knowledge of the signs and symptoms of Lassa fever

DEFINITION OF TERMS

Lassa fever is an acute, viral disease carried by a type of rat that is common in West Africa

An RNA virus is a virus which has (ribonucleic acid) RNA as its genetic material

A zoonosis (zoonotic disease or zoonoses -plural) is an infectious disease that is transmitted between species from animals to humans (or from humans to animals).

The Natal multimammate mouse (*Mastomysnatalensis*) is a species of rodent in the family Muridae. It is also known as the Natal multimammate rat, the common African rat, or the African soft-furred mouse.

Vector-Borne Disease: Disease that results from an infection transmitted to humans and other animals by blood-feeding anthropods, such as mosquitoes, ticks, and fleas.

Seropositive; The state of either having or not having detectable antibodies against a specific antigen, as measured by a blood test (serologic test)

PPE; personal protective equipment

A **tremor** is an unintentional and uncontrollable rhythmic movement of one part or one limb of your body.

PART FOUR

REVIEW OF RELATED LITERATURE

Related literature for the study was reviewed under the following subheadings:

- Concept of Lassa fever
- Causative agent of Lassa fever
- Epidemiology of Lassa fever
- Clinical features of Lassa fever
- Laboratory Diagnosis of Lassa Fever
- Treatment of Lassa fever
- Signs and symptoms of Lassa fever
- Prevention and control of Lassa Fever.
- Other Means of Lassa Fever Prevention

CONCEPT OF LASSA FEVER

Nigeria is presently suffering from another Lassa fever epidemic. The Minister of Health of the country said in a statement on the recent Lassa fever outbreak that: "Since the beginning of this year, there has been an upsurge in the reported cases of Lassa fever especially in the Federal Capital Territory (FCT) and its environs. Within the last two weeks, we have recorded 12 cases with five deaths (41.7% case fatality). Much more worrisome is the danger that the outbreak poses to health workers. Four health staff working in the National Hospital, Abuja who were taking care of one of the Lassa fever cases have also fallen ill and laboratory investigations have confirmed they are infected with the Lassa virus." "About 25 contacts in all were found to be positive with the Lassa virus from laboratory investigations but did not come down with the disease" (Chukwuma, 2009). Lassa fever is an acute viral

haemorrhagic fever first described in 1969 in the town of Lassa in Borno state, Nigeria, located in the Yedseram river valley at the south end of Lake Chad (Frame JD, 2009). Clinical case of the disease had been known for over a decade earlier but not connected with this viral pathogen. The infection is endemic in West African countries and causes 300,000-500,000 cases annually with approximately 5000 deaths (Ogbu, 2007). Outbreaks of the diseases occur in Nigeria, Liberia, Sierra Leone, Guinea and Central African Republic, but it is believed that human infections also exist in Democratic Republic of Congo, Mali and Senegal (Wikipedia, 2009). Its primary animal host is the Natal Multimammate Mouse (MastomysNatalensis), an animal indigenous to most of Sub-Saharan African (Werner Dietrich, 2004). The virus is probably transmitted by the contact with the faeces and urine of animals accessing grain stores in residential areas (Micheal, et al, 2001).

CAUSATIVE AGENT OF LASSA FEVER

Lassa fever is caused by the Lassa virus, a member of the arena viridae; it is an enveloped, single-stranded, bi-segmented RNA virus (Ogbu, 2007). The virions exhibit pleomorphic morphology when examined by cryoelectron microscopy. The surface of the virion envelope is studded with glycoprotein projections that consist of tetrameric complexes of the viral Glycoprotein GP1 and GP2 (Micheal, et al, 2001). The genome of Lassa virus like other arena consists of two single-stranded RNA segments designated S (small) and L (large). In virions, the molar ratio of S to L RNAs is roughly 2:1. The 5' terminus of each segment contains a tri-or diphosphate group and lacks a cap structure. The S RNA segment contains two genes that encode three final gene products- the nucleo protein (NP or N) and the envelope glycol proteins GP1 and GP2 (also termed GP-1 and GP-2, or G1 and G2). GP1 and GP2 are first expressed as a precursor protein, GPC (or GP-C), which is cleaved post

translationally (Buchmeier, 1997). The L RNA segment contains two genes that encode two genes product, the viral polymerase (L protein) and Z protein, a small protein of undetermined function (Buchmeier, 1997). On both segments, the genes are arranged in an ambience orientation. The NP and polymerase genes reside at the 3' end of the S and L RNA segment, respectively, and are encoded in the conventional negative sense- that is, they are expressed through transcription of genome – complimentary mRNAs. The genes located at the 5' end of the S and L RNA segment, GPC and Z, respectively, are encoded in mRNA sense but there is no evidence that they are translated directly from genomic RNA. These genes are expressed instead through transcription genomic-sense mRNAs from antigenomes, full length complimentary copies of genomic RNAs that function as replicative intermediates (Michael, et al, 2001). Lassa virus will infect almost every tissue in the human body. It starts with the mucosa, intestine, lungs, and urinary system, and then progresses to the vascular system (Wikipedia, 2009).

EPIDEMIOLOGY OF LASSA FEVER

Vectors: Lassa virus is zoonotic. The natural hosts for the virus are multimammate rats (Mastomys natalenses), which breed frequently throughout west, central, and east Africa (Healing, 2001). They are probably the most common rodent in tropical Africa and are found predominantly in rural areas and in dwelling more often in surrounding countryside (McCormick, 1994); members of the genus are infected persistently and shed the virus in their excreta. Humans are infected by contact with rats or by eating them. Rats found in houses of infected people are seropositive for the virus ten times more often than those in control houses (Keenlyside, 1993). Virus antibodies occur after a febrile illness in twice as many people who eat rats as in those who do not, and deafness (an effect of Lassa fever)

occurs four times more frequently (Dorlemann, et al, 1996). Infection in humans typically occurs via exposure to animal excrement through the respiratory or gastrointestinal tract. Inhalation of tiny particles of infective materials (aerosol) is believed to be the most significant means of exposure (Micheal, et al, 2001). It is possible to acquire the infection through broken skin or mucous membranes that are directly exposed to infective materials. Transmission from person to person has also been established, presenting a challenge for health care workers. Sexual transmission and transplacental transmission of the virus have also been established (Wikipedia, 2009). Transmission through breast milk has been observed (Wikipedia, 2009).

- Prevalence/Incidence

Dissemination of the infection can be assessed by prevalence of antibodies to the virus in populations. The prevalence of antibodies to the virus is 8-52% in Sierra Leone, 4-55% in Guinea, and in Nigeria (Tomori et al,1998). Seropositivity has also been found in the Central African Republic Democratic of the Congo, Mali and Senegal (WHO, 2000). Sporadic cases have occurred in travelers returning to Britain, the Netherlands, and Germany from the endemic areas.

- Morbidity And Mortality

Lassa fever affects people of all ages. The disease is mild or has no observable symptoms in about 80% of people infected, but 20% have a severe multisystem disease. Incubation period is 6-21 days. The virus is excreted in urine for three to nine weeks from infection and in semen for three months (WHO, 2000). Sensorineural hearing deficit is a visual of the disease it was found in the 29% of confirmed cases compare with none of febrile controls in hospital in patients (Cummins et al,1990). In the general population, 81% of those who experienced

sudden deafness had antibodies to Lassa virus as against 19% of matched controls (Liao et al,1992). There is no apparent relationship between the severity of viral illness, initial hearing loss, or subsequent recovery (Liao et al,1992). Presentation of cases used to be highest during the dry season (January to March) and lowest during the wet season (May to November). However, recent data from Kenema, Sierra Leone show that admissions were highest during the change from the dry to the wet season (Wilson, 1995). Lassa fever was responsible for 10-16% of all adult medical admissions in 1987 into hospitals studies in Sierra Leone and for about 30% of adult deaths (McCormick, 1995). The case fatality rate varied from 12% - 23% for the period of 1997 -2002. During pregnancy, high rate of maternal death (29%) and fatal and neonatal loss (87%) have been recorded, with 20% of all maternal deaths in Sierra Leone being due to Lassa fever (Price, 1998). An estimate of the case fatality rate in the general population is 1-2%, must lower than in hospitalized cases, possibly because of differences in severity. Using the figures for rural populations (available from United Nations Development Programme) and the epidemiology of the disease we estimate that the 'at risk' seronegative population (in Sierra Leone, Guinea, and Nigeria) may be as high as 59 million, with an annual incidence of illness of three million, fatalities up to 67,000 and up to three million reinfections (Kay and Deborah, 2003).

CLINICAL FEATURES OF LASSA FEVER

Infection with Lassa virus leads to the gradual onset of fever and malaise after an incubation period of about 10 days (range, 5-21days), as the process develops, there is an increase in fever and myalagia, with severe prostration. Gastrointestinal manifestations such as abdominal pain, nausea, and vomiting, diarrhoea, or constipation are common. Sore throat occurs in two thirds of cases and is usually

accompanied by objective inflammatory or exudative pharyngitis. Retrostenal pain and cough are frequent, and pleural effusions may develop. Bleeding manifestations are seen in less than a third of patients but signal an unfavourable prognosis. Signs of increase vascular permeability such as facial oedema or pleural effusion are present in a minority of patient and suggest a poor prognosis. Mortality in hospitality patients is 15-20% (Micheal, et al, 2001). A careful case-control study comparing Lassa fever to other febrile diseases seen in a West African hospital found features significantly associated with Lassa fever, including bleeding, oedema, exudative pharyngitis, conjunctivitis, and pharyngitis, but positive predictive values ranged between 0.61 to 0.74 (McCormick JB, 1987). The same study also found vomiting, sore throat, tachypnoea, or bleeding to predict a 2.5-fold or higher increased risk of death. Despite the relative non-specificity of the clinical findings, more than three fourths of patients thought to have severe Lassa fever are confirmed through viral assays. Lassa fever is a major paediatric problem as well (Smadel et al, 2009). Disease is more difficult to diagnose clinically. Occasionally, cases of infants developing anasarca have been described. The course of fatal Lassa fever is relentless, with progression of signs and symptoms culminating in the onset of shock and death. In Survivors symptoms and viremia persist until, 2 to 3 weeks after onset, there is defervescence accompanied by the disappearance of virus from the blood. Pericarditis may occur in early convalescence, particularly in male patients. A case of polyserositis and recurrent pericarditis with constriction has been reported, which suggest that such complications should be sought more carefully (Hirabayashi, 2008). Neurologic disease is not usually a dominant clinical manifestation in Lassa fever, but aseptic meningitis, encephalitis, global encephalopathy with seizures, and more subtle neurologic problems are well described (Solbrig et al,1993). Cerebellar ataxia in convalescence is an uncommon but interesting occurrence. In convalescence, deafness is common; this is an important feature of Lassa fever, as it

provides an important diagnostic clue (Frame, 1990). Late in course of the disease or early in convalescence, unilateral or bilateral hearing loss was noted in 29% of prospectively studied patients. No treatment is available, and the effects may be transitory or often permanent. The auditory patterns and clinical course resemble idiopathic nerve deafness. The clinical laboratory provides few clues to the diagnosis. The leucocytes count can be low, normal, or modestly elevated. Platelet counts are generally normal but may be modestly decreased (Fisher-Hoch S, 1998). Albuminuria is common. AST is usually at least mildly elevated and the degree of elevation, which parallels the viremia, is useful predictor of mortality. Patients with AST values in the hundreds or thousands are at considerable risk of dying even with ribavirin treatment. Chest radiography may show infiltrates, pleural effusions, or, more commonly, no abnormalities. Electrocardiographic findings are often nonspecifically abnormal. Lassa virus also causes unusually high fetal mortality. Gravid women have been recognized to have an increased risk of death from Lassa fever, and prospective studies have shown that this is particularly pronounced 30% in the third trimester, compared to a 13% mortality in non-pregnant women. Fetal loss was 87%, all infants infected in the last trimester died inutero or during the neonatal period. Viremia, which is correlated with the risk of dying in Lassa fever patients, was higher in pregnant than non-pregnant women. High concentrations of virus were found in fetal tissue as well as placenta (Walker, 2000). the biologic basis for these findings is unknown, but it seems likely that, once infected, the immature fetus is unable to mount an effective T-cell response to control the virus infection, maternal T cells would not be able to attack the placental infection because of the lack of MHC class I or II antigen expression on placental cells. Thus, the fetus and its supporting tissues would be a source of high-level virus production.

LABORATORY DIAGNOSIS

There are a range of laboratory investigations that are performed to diagnose the disease and assess its course and complications. Lassa virus is easily isolated from the blood or serum during the febrile phase of the disease up to 14 or more days after onset, even after the appearance of IFA antibody. Virus can also be detected in necropsy tissues (Johnson Km et al, 1992). Vero cell cultures examined by fluorescent antibody allow a diagnosis in 5 to 7 days or sooner. Lassa virus antigen can be detected by ELISA capture in serum within 4 hours of beginning testing and as it becomes negative, Igm antibodies appear. Antigen detection by ELISA is robust and reliable in rapidly fatal cases, even if the specimens are not handled properly for virus isolation. ELISA test for antigen and IgM antibodies gives 88% sensitivity and 90% specificity for the presence of the infection. Reverse transcriptase (RT-PCR) is also a sensitive test for virus RNA, being positive in the blood of 23 of 29 patients are admission and 29 of 29 patients by the third day of hospitalization. Antibody can be detected by CF, IFA, or ELISA. IFA using lassa-infected vero cells as substrate is widely used (Jahrling PB, 1995) interpretation is subjective and discrepancies between laboratories are common IFA IgG seroreversion has been reported and thought to represent loss of antibody by previously sero-positive individuals. Lassa IgG and IgM can also be detected by ELISA (Johnson Km et al, 1997). ELISA IgM titres appear earlier and persist longer than IFA IgM titres. IgG ELISA antibody persists for long period, whereas IFA antibody appears to wane below detectable limits within several years. Other effects of illness include lymphocytopenia and a moderate thrombocytopenia, which are maximal 10-11 days after the onset of symptoms. the thrombocytopenia is associated with a serum inhibitor and with the occurrence of haemorrhage, depression of

platelet aggregation, and the severity of Lassa fever (J Kay Richmond and Deborah J Baglole, 2003).

TREATMENT OF LASSA FEVER

All persons suspected of Lassa fever infection should be admitted to isolation facilities and their body fluids and excrete properly disposed.

- Antiviral Drugs

Although several compounds have shown in vitro efficacy, only the guanosine analogue ribavirin has had practical application. The drug is efficacious in Lassa fever and is the therapeutic agent of choice in the disease (Micheal, 2001). Early and aggressive treatment of Lassa fever using ribavirin was pioneered by Joe Mccormick in 1979. After extensive testing, it was determined that early administration is critical to success. Additionally, ribavirin is almost twice as effective when given intravenously as when taken by mouth (Fisher-Hoch SP, 2004). ribavirin is a prodrug which appears to interfere with viral replication by inhibiting RNA dependent nucleic acid synthesis, although the precise mechanism of action is disputed. the drug is relatively inexpensive, but the cost of the drug is still very high for many of those in poverty stricken west African states. When Lassa fever infects pregnant women late in their third trimester, it is necessary to abort the pregnancy for the mother to have a good chance of survival. This is because the virus has an affinity for the placenta and other highly vascular tissues. The fetus has only one in ten chance of survival no matter what course of action is taken, hence focus is always on saving the life of the mother (J Kay et al, 2003). Following abortion, women should receive the same treatment as other Lassa fever patients. Siga Technologies is developing an antiviral drug that has been shown to be effective in treating experimentally infected pigs. In a study conducted at the U.S Army research institute

of infections. Disease (USAMRIDD), treatment with ST-193 once a day for 14 days resulted in significant reduction in mortality (71% of the animals survived at the low dose), whereas all untreated animals and those treated with ribavirin died within 20 days of the infection. Intravenous interferon therapy has also been used in the management of Lassa fever infection.

- Supportive Therapy

Supportive therapy is important in the management of patient with Lassa fever (Peters CJ et al, 1993). Avoidance of travel and general trauma, gentle sedation and pain relief with conservative does of opiates, the usual precautions of such patients with bleeding diatheses (such as avoiding intramuscular injections and acetylsalicylic acid), and careful maintenance of hydration are indicated. Bleeding should be managed by platelet transfusions and factor replacement as indicated by clinical judgment and laboratory studies. Management of shock is difficult. Vigorous infusion of crystalloid carries a high risk of pulmonary edema. Cautious administration of fluids and early use of pressors is indicated, but careful monitoring is important.

- Containment

The most dangerous exposure is parenteral and must be avoided through staff training. Thus, patients with these Lassa fever should be treated in mask, gown, and glove isolation. Protection to care givers and other patients should have been enhanced by the addition of reparatory protection against small-particle aerosol (Peters CJ et al 1993). Close personal contacts should be monitored for fever for a period of 3 weeks. The patient may continue to excrete virus in urine or semen for weeks after recovery, so body fluids should be monitored for infectivity before the patient is released, meanwhile, a program of counselling emphasizing addition of

disinfectant to toilets before use and protection of sexual partners should be followed. Special precautions are indicated when blood and other body fluids are handled in the clinical laboratory

- Passive Antibody

Lassa virus infections are more difficult prospects for antibody therapy than other arenaviruses, because the volumes of plasma needed based on animal studies are large: experimental studies of IgG for intravenous administration indicate the this could be a useful means of treatment only if selected, highly active preparation were available. The future of antibody therapy in any of this disease lies in development of standardized monoclonal antibody preparations of proven efficacy (Jahrling PB et al,1994).

SIGNS AND SYMPTOMS OF LASSA FEVER

The signs and symptoms of Lassa fever is usually divided into three phases.

Phase One

- ❖ Fatigue,
- ❖ General weakness and
- ❖ Fever.

Phase Two.

- ❖ Headaches,
- ❖ Sore throat,
- ❖ Vomiting,
- ❖ Diarrhoea,
- ❖ Muscle pain,

- Chest pain,
- Cough and
- Abdominal pain

Phase Three

- Face swelling
- Low blood pressure,
- Bleeding from the mouth, nose, vagina, gastrointestinal tract
- Fluid in the lung cavity,
- Protein may be noted in the urine.
- Shock,
- seizures,
- Tremor,
- Disorientation, and
- Coma may be seen in the later stages

PREVENTION AND CONTROL OF LASSA FEVER

Of all the arenaviridae, the Lassa fever virus has the greatest public health implication and control of the mastomys rodent population is impractical, so measures are limited to keeping rodent out of homes and food supplies, as well as maintaining effective personal hygiene. Gloves, face masks, laboratory coats, and goggles are advised while in contact with an infected person. Vaccine against Lassa fever is currently unavailable, though development is underway. The Mozambique virus closely resembles Lassa fever virus but lacks its deadly effects. This virus is being considered for possible use as vaccine. Researchers at the USAMRIID facility have a promising vaccine against Lassa virus based on recombination vesicular stomatitis virus vectors expressing the Lassa virus glycoprotein. After a single

intramuscular injection, test primates have survived lethal changes, while showing no clinical symptoms (Geisbert TW, 2005).

OTHER MEANS OF LASSA FEVER PREVENTION

The following means could also be employed in preventing and controlling Lassa fever infection.

- Avoidance; avoid contact with an infected persons, rats and contaminated items
- Block all; block all rat hideouts,
- Store foodstuffs; store all food in rodent proof containers
- Cook foods; thoroughly cook food to avoid zoonosis
- Always wash hand thoroughly wash after contact with sick people or infected surfaces,
- PPE: always use personal protective equipment while in the hospital to avoid nosocomial infection
- Hygiene: practicing hygienist is paramount important in preventing Lassa fever

THEORETICAL FRAMEWORK

The theoretical framework of this research work was based on the information motivation behavioral skills.

Information-Motivation-Behavioral Skills

With the rapid worldwide increase in the prevalence of communicable diseases such as malaria, tuberculosis, and HIV/AIDS, efforts have been made to develop and test appropriate interventions for preventing disease-related complications and improving the quality of life for patients with these diseases. (Martin et al, 2010).

Because behavioral changes are a core component of self-management and adherence, researchers and health care providers in health-related fields have emphasized the importance of behavior change (Newman, 2009). Consequently, several studies of people with communicable diseases have focused on behavioral interventions to improve self-management or adherence (Sabate, 2003). Therefore, researchers developing behavioral interventions for individuals with communicable diseases have paid attention to behavioral theories, which can be used to increase the effectiveness and efficacy of behavioral interventions (Ammerman, et al, (2007). Behavioral theories such as the health belief model, (HBM), the theory of reasoned action (TRA), the theory of planned behavior (TPB), the trans-theoretical model, (TTM), and the information motivation behavioral skills (IMB) model, all of which specify determinants of behavior that are potentially amenable to change, have frequently been used to develop behavioral interventions (Newman et al, (2008). In particular, the IMB model has received considerable attention because it not only provides a relatively simple explanation for complex health behaviors but also identifies constructs (including information, motivation, and behavioral skills) that are needed for successful self-management or adherence among patients with these diseases, (Deakin, 2005)

The IMB model, proposed by Fisher and Fisher (1992) to explain HIV-related behaviors, recognizes three constructs such as information, motivation, and behavioral skills needed to engage in each health behavior, as specific individual determinants of behavior and behavioral change (Fisher &Fisher, 2009). According to this model, information is defined as "an initial prerequisite for enacting a health behavior" (Misovich, et al, 2003). This includes not only behavior-related information but also myths/heuristics that permit automatic or cognitively effortless behavior related decision making (Fisher, Fisher, &Harman, 2003). Motivation is

composed of two factors: personal motivation, which includes beliefs about the intervention outcome and attitudes toward a particular health behavior (Fisher et al, 2006), and social motivation, which includes the perceived social support or social norm for engaging in a particular behavior (Fisher et al. 2003). Behavioral skills, the third determinant in the IMB model, are skills necessary for performing a particular health behavior. To facilitate behavioral change, behavioral skills in the IMB model emphasize the enhancement of an individual's objective skills and increasing perceived self-efficacy (Fisher et al.), information and motivation have direct effects on both behavioral skills and health behavior. Additionally, behavioral skills exert direct effects on health behavior (Fisher et al. 2005).

Information, motivation, and behavioral skills as well as explicit relationships among these constructs are considered generalizable determinants of health behaviors. Therefore, the IMB model has been used as a theoretical basis for behavioral intervention studies across a variety of health behaviors (Carey et al, 2007). However, though the number of behavioral interventions based on the IMB model has increased in fields related to health behavior changes, there is a need to delineate specific strategies that have been integrated into IMB model-based interventions and to find evidence of the effectiveness of the model in facilitating behavioral change for patients with communicable diseases. For this reason, the current study systematically reviewed studies on behavioral interventions based on the IMB model targeting patients with Lassa fever diseases.

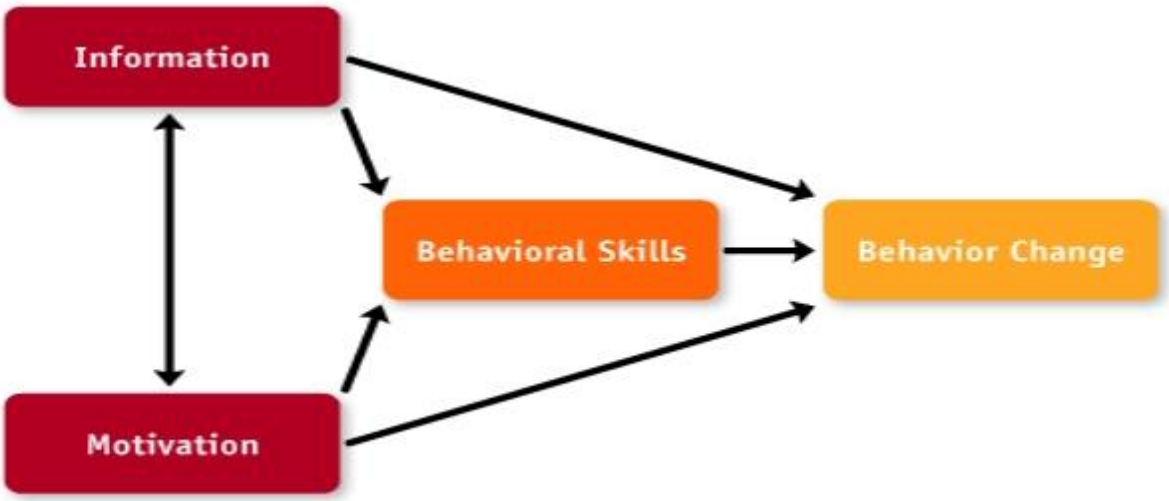

Figure 1: A strict reproduction of the Information-motivation-behavioral skills model by W.H.O

Fisher J, Fisher W, Amico and Harman (2006), outlined specific details for IMB constructs as applied to prevention of Lassa fever viruses:

1. Information includes relevant knowledge on the danger of Lassa fever virus and the appropriate method to mitigate it whenever it occurs or perceive by the individual.
2. Motivation includes both personal and social motivations. Personal motivation includes positive or negative attitudes towards adhering to the knowledge of Lassa fever infection and its adverse effects of non-adhering to the recommended behaviour, perceived benefits or side effects of adhering to the recommended behaviour. Social motivation includes the individual's perceptions of social support from significant others for supports and his or her desire to comply with it.

3. Behavioral skills are the individual's self-efficacy for Prevention and control of Lassa fever such as strategies to adhere to the recommended behaviour and the benefits of keeping to the recommended behaviour over time across different situations

PART FIVE

PROGRAMME INTERVENTION

Implementation Plan

The researcher planned the intervention to span through a period of three weeks and to comprise:

- Design of posters and handbills
- Health talk on Lassa fever virus with emphasis on early diagnosis, reporting of any signs and symptoms observed, carrying out of routine medical check, taking care of their surrounding and covering their food properly.
- One on one counselling and follow up when necessary

Health Talk

The researcher was given the platform to give health talk to the patients on every antenatal and immunization day. The researcher explained the signs and symptoms of Lassa fever when infected, laying much emphasis on the disease's prevention

Application of Theoretical Framework to Intervention Programme

Information: the patients were sensitized on the dangers, mode of contracts, signs and symptoms, control and prevention of Lassa fever viruses

Motivation: this was further categorized into.

a) Personal Motivation: The researcher educated the patients on the benefits of adherence and the risks of non-adherence to the information given on their health
b) Social Motivation: the researcher encouraged the patients to invite their friends and family members to the health center so that they could also be

educated on the dangers of Lassa fever, its mode of transmission and the possible way to mitigate it.

Behavioral Skills: Having gotten information and motivation, the patients were finally equipped with the relevant skills to improve their ability to take care of themselves (self-efficacy)

EVALUATION OF THE INTERVENTION PROGRAMME

1. The researcher observed that the patients' level of adhering to the recommended principles of personal hygiene and safe environment has improved in order to control Lassa fever virus was a huge success
2. Also, the health workers were no longer scared of attending to patients suspected of Lassa fever as they now have adequate knowledge concerning the signs and symptoms.
3. Health workers now also constantly use their PPE as this is one of the measures to prevent the Lassa fever.
4. It was also observed that both health workers and patient constantly make use of hand sanitizer and employed the hand wash method
5. The researcher also noticed that the Corp member attached to lily hospital now go out to sensitize people on Lassa fever preventive measure

PART SIX

SUMMARY

The preceptorship programme was an intervention to increase the awareness and knowledge of Lassa fever viruses among health workers and patients in Lily hospital, Oredo Local Government Area, Edo State. The researcher identified problems needing Intervention, one of which was some of the issues of rats and patients not been given adequate sensitization on the benefits of personal hygiene as well as the dangers of Lassa Fever viruses and its consequences to the patients if been infected. The Information motivation theory was used as a theoretical framework to guide the implementation of activities needed to change behaviour. After evaluation, the researcher found out that the intervention programme was successful

CONCLUSION

Of all the Arenavirus diseases, Lassa fever has the greatest health impact and prospect for its prevention through rodent control is least. No vaccine against the disease is currently available at the time of this study. The development of vaccines for Lassa fever carries several inherent problems. Clinically, Lassa fever infections are difficult to distinguish from other viral hemorrhagic fever and from more common febrile illness such as malaria, typhoid fever, shigellosis, leptospirosis, rickettsia disease and relapsing fever. Clinical laboratory provides little or no clue. RT-PCR tests which provide definitive diagnosis are not readily available in West African countries. Where, it is available it is too expensive and out of reach of the poor people living in the endemic areas. When the diagnosis is made, cost Ribavirin and of barrier/isolated care in unaffordable. Furthermore, Lassa virus also causes usually high fetal mortality. Gravid women have been recognized to have an increase

increased risk of death from Lassa fever, particularly pronounced in third trimester. All infants infected in the last trimester died in utero or during the neonatal period. The disease is thus contributing in no small way to the high material, neonatal, infants and under five mortality rates in West Africa. Failure to effectively control the disease makes the attainment of the millennium development goals of reducing maternal and infant mortality rates impossible. The disease also has the potential of being used as biological weapon. It therefore constitutes an infectious menace that must be curbed

Recommendations

In order to improve acceptable standard of living, both in the present and in the future health of health workers, patients, the communities and the country at large, the following recommendations were drawn:

- The state and local government should make efforts towards employing more trained health workers in sensitization and control of Lassa fever viruses.
- The non-governmental organizations (NGO) should work with the state and local government in order to implement policy that will enhance the safety of personnel in order to control Lassa viruses in the local Center.
- Health workers should be adequately trained on the area of Lassa fever so that they could provide the right information to patients.
- There should be more governmental sponsored sensitization and health talks on Lassa fever both on radios, televisions, churches, mosques, and so on.
- The government of Nigeria should work with other agencies in the control of Lassa fever viruses both in national and in the international level

- Nigeria government should support and enforce a policy that will help in the control of Lassa fever viruses to all eligible owned - private health care providers.
- The state government should encourage printing and dissemination of Information, Education and Communication (IEC) materials such as posters, billboards and pamphlets to communities in the language that will be understandable to the community members. These materials should contain information's about Lassa fever viruses, the importance of hygiene and the danger of not abiding.

Appendices.

The researcher given a health talk on Lassa fever on antenatal day

fog disinfection of lily hospital of the hospital against Lassa Fever Virus

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