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Review Article

The Slaughter House and the Re-emerging Foodborne Illness with Special Reference to Bovine Tuberculosis

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Abstract

The Slaughter house is the place in which the animals are slaughtered for human consumption. The Slaughter house plays important role in prevention of zoonotic diseases between animals and humans like Mycobacterium tuberculosis as reemerging foodborne illness and also prevent infectious diseases between animals. Bovine Mycobacterium tuberculosis is caused by a species of pathogenic Gram positive, acid fast stain bacteria in the Mycobacteriaceae family. the causative agent bacteria of Bovine tuberculosis as reemerging foodborne illness tuberculosis bacteria has an waxy cover on its surface primarily due to the presence of acid called mycolic which refers the cells impervious to Gram staining, and as a result, the causative agent bacteria of Bovine tuberculosis as reemerging foodborne illness may appear weakly Gram-positive. Acid-fast bacilli by using certain stains called Ziehl Nielsen, or through using stain called fluorescent such as aura mine are used to identify the cause of Bovine tuberculosis as reemerging foodborne illness with a microscope. The Bacteria cause Bovine tuberculosis as a reemerging foodborne illness is aerobic bacteria and needs high concentrations of oxygen. Mainly this bacteria is pathogenic to human and mammal's respiratory system, it infects the lungs. The most diagnostic means for Bovine tuberculosis as a reemerging foodborne illness are the tuberculin skin examination, stain of acid-fast, laboratory culture, and through using polymerase chain reaction method.

Keywords

The Slaughter House, Cattle, Mycobacterium Tuberculosis, Reemerging, Foodborne Illness

1. Introduction

Bovine tuberculosis as a reemerging foodborne illness is one of the ignored foodborne illness in the developing countries in the world [1-4]. The Bovine tuberculosis as a reemerging foodborne illness occurrence and transmission would be still used in many places in the world Bovine Tuberculosis as a reemerging foodborne illness needs further studies, efforts and works to detect the infected cases of Bovine Tuberculosis as a reemerging foodborne illness in cattle, role of the Slaughter houses as well in humans. The advanced methods of interaction between researchers including medical and veterinary disciplines, would generate accurate results [5-8]. Even more, as human tuberculosis due to Bovine tuberculosis as reemerging foodborne illness is still a public health importance in different countries in the world, in developing countries in the world where detection is mostly not depend upon molecular and accurate diagnostic examinations, in addition to microscopy investigation for Bovine Tuberculosis as a reemerging foodborne illness bacteria in samples

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from the body as well as culture in the laboratory, the Bovine tuberculosis bacteria would be causing many of M. tuberculosis attributed human Tuberculosis, especially in the case of outside lung forms of Tuberculosis, even more in rural areas where both Tuberculosis diseases may overlap and where human–cattle contact as ingestion of unpasteurized milk and contaminated dairy products with Bovine tuberculosis bacteria may be of importance [9-11]. Control methods and human tuberculosis control methods, especially in those areas in the world, should consider the importance of Bovine tuberculosis and begin to introduce applicable research into their activities as recording of the illness to control and eradicate Tuberculosis from this bacteria in the world [12-15].

Methods of identification and Diagnosis of Bovine Tuberculosis as a reemerging foodborne illness [16-21].

Bovine Tuberculosis symptoms are not accurate distinctive, so do not enable veterinarians in the field to perform accurate diagnosis depend upon symptoms and appearance without other aids.

Test called tuberculin skin examination is standard mean for Tuberculosis diagnosis in live cattle. The living animal is injected with bovine tuberculin through intra-dermal way of injection and then measuring thickness of the skin at the site of injection three days later to detect any subsequent thickening in the skin at the place of the injection.

Blood based in vitro examinations method, this methods could detect M. bovis bacteria, detect antibodies, or detect cell-mediated immunity are suitable, or under development to give accurate results. The most common used methods of examination of blood is a gamma interferon release assay.

Accurate diagnostic means may be confirmed in the laboratory by the aid of culturing of bacteria and other identification methods, a process that may take several weeks. The used examinations including all procedures for the manufacturing and the administering of bovine tuberculin.

Nature of Bovine tuberculosis as a reemerging foodborne illness. Bovine tuberculosis as reemerging foodborne illness is a chronic disease affects cattle caused by members of the Mycobacterium tuberculosis complex comes mainly by Bovine tuberculosis, but also may be caused by M. caprae and to a lesser extent may be caused by M. tuberculosis [22-26]. Bovine tuberculosis as reemerging foodborne illness is a mostly infectious Tuberculosis among cattle, and wild animals, Bovine tuberculosis as reemerging foodborne disease causes symptoms of a general condition of illness, pneumonia in the lung, loss in the weight, and death in the last stage of the disease [27-31]. The name Bovine tuberculosis as a reemerging foodborne illness is derived from the nodules word, called ‘tubercles’ word, present in the lymph nodes of cattle and other infected organs [32-35].

Herds of cattle are the main reservoir of Bovine tuberculosis as a reemerging foodborne illness and are the common source of human infection. In addition, the Tuberculosis is reported in other domesticated and wild animals in the world [36-39].

Geographical distribution of Bovine tuberculosis as a reemerging foodborne illness. Bovine tuberculosis as reemerging foodborne illness is found throughout the world [40-43], but in some countries in the world have never detected tuberculosis, and many developed countries in the world have reduced the incidence of the illness or eliminated bovine tuberculosis from their cattle population and kept the Tuberculosis limited to certain areas [44-48]. Significant areas of infection are remained in wildlife. The highest incidence of bovine tuberculosis is in African countries, parts of Asian countries and Tuberculosis is still affects countries in Europe area & the America area [49-56].

The most prominent clinical pictures of Bovine tuberculosis as a reemerging foodborne illness in cattle, Bovine tuberculosis as a reemerging foodborne illness may be sub-acute or chronic, with a variable rate of progression [57-62]. Few numbers of cattle can become severely infected within a few months of infection, while other cattle may take several years to appear clinical pictures. Bovine tuberculosis bacteria may also lie dormant in the host without showing clinical pictures for a long times [63-68]. Common clinical pictures of Bovine tuberculosis as a reemerging foodborne illness in man include Weakness, loss of appetite and weight loss, fluctuating fever, dyspnea and cough, clinical pictures of low-grade pneumonia, diarrhea, enlargement of lymph nodes [69-72].

2. Discussion

Mycobacterium bovis has been isolated from cattle, other domestic and wild animals as cattle, buffalo, sheep, goats, equines, camels, deer, antelopes, dogs, cats, and animals [73-76].

Bovine tuberculosis as a reemerging foodborne illness is an infectious illness [77-84].

Bovine tuberculosis as a reemerging foodborne illness causes tuberculosis in human. Bovine tuberculosis as a reemerging foodborne illness *is a form of* tuberculosis *in human commonly caused by related types*, Bovine tuberculosis, *which related to the* Mycobacterium tuberculosis *complex* [85-89].’

Transmission and spread of Bovine tuberculosis as a reemerging foodborne illness. The Tuberculosis is infectious and may be transported directly through direct contact with the infected cattle, or indirectly through oral route of infection [90-94].

The common route of infection in cattle herds occur through the way of inhalation of infected air aerosols produced from the infected lungs of infected animals. Young calves may be infected through ingestion of contaminated colostrum or milk from cows infected with bovine tuberculosis [95-101].

The man may acquire the infection through ingestion of raw unpasteurized milk or milk products from an infected cow, or through contact with infected tissues at the Slaughter house inspection or butcheries shops [102, 103]. The incubation period of Tuberculosis is slow and takes months or several years to reach the hopeless case. The infected animal may shed the bacteria within the animal herd before the clinical pictures of the symptoms appear. Movement of subclinical infected cattle is a main route of spreading the Tuberculosis infection [104-106].

Detection of Bovine tuberculosis as a reemerging foodborne illness, Bovine tuberculosis as a reemerging foodborne illness symptoms are inaccurate and, therefore, do not enable inspectors to make a definitive Detection based on symptoms alone [107, 108].

The tuberculin test depend up on skin examination is the standard method for tuberculosis Detection in the live cattle [109-112].

The recommended Blood based in vitro examinations that detection of causative bacteria, detection of antibodies, or detection of cell-mediated immunity are also available, or under development to give accurate results [113-118]. The most widely recommended blood-based examination is a gamma interferon release assay which detects a cell-mediated immune response to infection with Bovine tuberculosis [1, 118]. This examination is based on the principle that bovine blood cells that have previously been exposed to Bovine tuberculosis illness through an infection are known to produce elevated levels of gamma interferon following in vitro incubation time with Bovine tuberculosis antigens [2, 3].

The definitive Detection is confirmed through bacterial culture and identification in the laboratory [77, 78].

The used detection methods of Bovine tuberculosis as a reemerging foodborne illness, showing all the efforts of processing and the administering of the bovine tuberculin requirements [84, 85].

Public health risk of Bovine tuberculosis as a reemerging foodborne illness. The most common form of tuberculosis in *man* is caused by M. tuberculosis bacteria [89, 90]. It is impossible to clinical pictures differentiation to infection by M. tuberculosis bacteria from those caused by Bovine tuberculosis, able to account for up to ten percentages of human tuberculosis cases in some countries in the world [77-93]. Bovine tuberculosis as a reemerging foodborne illness detection may be further complicated through the tendency of Bovine tuberculosis infections to affect tissues other than the lungs and Bovine tuberculosis bacteria is resistant to one of the antimicrobials used in the treatment of tuberculosis infection in human [23, 24].

The applicable methods and decisions that are used to control the human and animal health hazards due to the infection of cattle with Mycobacterium tuberculosis complex, including Bovine tuberculosis [29, 30].

Role of the Slaughter house in eradication of Bovine tuberculosis as a reemerging foodborne illness. The Tuberculosis in human is the most common cause of illness and mortality in the world [117-118]. Caused mainly by Bovine tuberculosis as a reemerging foodborne illness and is transmitted by the respiratory route through direct close contact and inspiration aerosols of persons infected with tuberculosis [35, 36]. The Bovine tuberculosis as a reemerging foodborne illness is a less incidence form of human tuberculosis due to related member of the Mycobacterium tuberculosis complex (Bovine tuberculosis) [41, 42]. The Bovine tuberculosis as a reemerging foodborne illness is mainly indirectly transmitted by the ingestion of contaminated unpasteurized milk, dairy products, or meat that containing infected materials from infected animals [114-116]. In the world the regions where food inspection is still applied, the hazard to the public health has been minimized [111-113]; however Bovine tuberculosis as a reemerging foodborne illness infection remains an occupational hazard to food of animal origin eaters workers, the Slaughter house workers, and butchers [43-48]. Bovine tuberculosis as a reemerging foodborne illness is depend up on a One Health of human and animals recognizing the interdependence of human and animal health sectors for showing the main health, environmental and economic impacts of this disease [107-110, 49-54]. Effective action from all sectors and different methods as political, financial and investigation methods [56-60]. Defining the priorities for control Bovine tuberculosis as a reemerging foodborne illness in *man* and bovine tuberculosis in cattle [66-68]. Through Improving the scientific evidence base, Reduce transmission between cattle and humans, Supporting the cooperation between sectors, Preventive and control measures of Bovine tuberculosis as a reemerging foodborne illness [100-103]. The control and eradication measures Nationally depend up on examination, slaughtering healthy and infected cattle at the Slaughter house under the hygienic precautions, each in separate place is successfully used to control and eradicate Bovine tuberculosis as a reemerging foodborne illness [74, 75]. The meat quality is a complex concept involving a whole range of factors which for the consumer include safety, nutritional quality, availability, convenience and integrity, freshness, eating quality and the obvious physical attributes of the species, size and product type. Information about handling, processing and storage techniques, including time / temperature histories, that may affect the freshness and quality of the products is used for the partners in the chain The measures still inapplicable in some heavily infected countries in the world because it could necessitate slaughtering large numbers of cattle, and this may not be suitable, due to human resources are limited [16-18]. Besides contamination in meat processing facilities, contamination at the consumer and restaurant levels has gained increasing attention. Cross-contamination is the major concerns. Hands and utensils, as well as other food contact surfaces in kitchens, have repeatedly been reported as contamination sources So, most of countries in the world apply varying types of examination and segregation in early state, and then switch to examine &slaughter methods in the final stage [78-80]. The Bovine tuberculosis as a reemerging foodborne illness is the most serious cause of losses in meat, so many Tuberculosis eradication tools are successful used to eradicate the Bovine tuberculosis as a reemerging foodborne illness in animals, through applying a strict hygienic post mortem meat inspection at the Slaughter house, for detection of infected cattle and herds for Bovine tuberculosis as a reemerging foodborne illness, intensive surveillance on-farm visits, systematic individual examination of cattle, removal of infected and in-contact cattle, adequate local legislation, effective animal transportation control, diseased cattle identification, and effective Bovine tuberculosis as a reemerging foodborne illness traceability [16-19]. The raw meat may harbor a large number of foodborne bacteria, resulting in the substandard quality and the public health hazards, and so detection of Bovine tuberculosis of the diseased cattle in the Slaughter houses to protect the food chain and allows Veterinary Services to know the herd origin of the infected animal, then examine and eliminate the source of the Bovine tuberculosis [5-9].

The pasteurization or heat treatment tool of cow's milk to certain temperature able to kill the Bovine tuberculosis bacteria is efficient tool for minimizing Bovine tuberculosis in humans [24-27].

The antimicrobial treatment of the infected cattle is rarely attempted because of the doses and the duration of the treatment that would be required, the high cost of the medications, and the interference with the primary goal of eliminating the Bovine tuberculosis, and the potential hazards of the developing Bovine tuberculosis resistance to the drugs [28-34].

3. Conclusion

The Vaccination tool in human is applied, but in cattle it is not used as a preventive method due to the lack of suitable safe and effective method of vaccination, and may be possibility of interaction with bovine tuberculosis surveillance and examinations, due to false results due to the reactions in vaccinated cattle. Studies are actively examine potential new or improved bovine tuberculosis vaccines and alternate methods of vaccine delivery for application in cattle and new examinations methods to reliably differentiate vaccinated cattle from infected one.

Conflicts of Interest

The author declares no conflicts of interest.

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