CHAPTER 1

INTRODUCTION

INTRODUCTION

Listeria monocytogenes - a gram positive bacterium of animal origin - is the major pathogenic species for man and animals in the genus Listeria which comprises six other species . Serologically L. monocytogenes is subdivided into 16 serovars , however most cases of human and animal disease are caused by one of three serovars , 1/2a, 1/2b or 4b . The organism is widespread in the environment and many animals and birds. It has the ability to grow over a temperature range (2-42°C) that includes refrigerator temperatures . The bacterium itself becomes intracellular and man's resistance to this bacterial infection depends on cellular immunity and T-cell function (Listeriosis, 1989) .

Listeriosis frequently occurs during pregnancy and in neonates as well as in persons with decreased resistance (immunocompromised hosts and the elderly) (WHO, 1987) . Infections also occur in some apparently healthy individuals of all ages . Although carrier rates are reported to be about 5% in the normal population and higher in groups at special risk (Stamm et al. , 1982) ; yet the extent to which subclinical infection takes place is not known (McLuchlin , 1987) .

Clinically , listeriosis in man may take different forms the most serious is meningitis or meningo-encephalitis , septicaemia and in the case of the pregnant female usually it appears as a mild illness but may result in intra-uterine infections of the foetus which may result in abortion , still-birth , premature labour with a disseminated infection in the neonate known as granulomatosis infantiseptica (Listeriosis,

1989) . Furthermore , neonatal infections acquired during and after delivery can cause septicaemia or meningitis in the second or third week of life (Barza,1985).

Most infections appear to be sporadic , but occasional outbreaks in adults has now led to the suggestion that listeriosis is likely to be a food borne infection . Before 1977 , fewer than 40 cases a year were reported in England and Wales , but the number have sharply increased , 259 cases were reported in 1987 (Listeriosis, 1989) . The infection also appears to be increasing in North America and other parts of Europe . Possible reasons for this increase , which shows no sign of abating , warrant serious consideration (Lamont et al., 1988 , Gill, 1988 and Kerr & Lacey, 1988) . In Egypt no case report of human listeriosis was reported till now .

Listeria species are present in vegetation , water , soil and faeces of man and animals , so it is not suppressing that they are present in food . The ingestion of modest numbers of Listeria causes no clinical problems in healthy people . Although the infective dose is unknown , yet presumably it is lower for pregnant and immunologically compromised individuals than for normal population .

Many reports attest to frequent presence of listeriosis in a great variety of foods including poultry carcasses both fresh and frozen (Pini & Gibort, 1988) , commercially cooked chicken (Kerr et al., 1988) , cow's and goat's milk even sometimes pasteurized milk (Flemming et al., 1985) , soft cheeses (Pini & Gilbert, 1988) , cabbage (Schlech et al.,

1983) and prepacked salad's (Sizmur & Walker, 1988) .

Although Listeria is a rather susceptible bacterium , most antibiotics exert a bacteriostatic effect on L. monocytogenes (Espaze & Reynaud, 1988) . The intracellular localization of the bacteria leads to the relative incapability of antibiotics to penetrate infected cells (Bakker-Woudenderg et al. 1988) . Patients affects with listeriosis often have poor defense mechanism e.g. neonates or immunocompromised hosts (Larsson et al., 1985) . They present meningitis or septicaemia and it is useful to treat them with bacteriocidal drugs . In addition , the inability of bacteriocidal antibiotics to quickly kill L. monocytogenes at low concentrations , indicated the study of antibiotic combinations (Espauze & Reynaud , 1988) .

A good means to evaluate the bacteriocidal effect of a drug or a combination of drugs is to perform time kill studies establishing killing curves (Espauze & Reynaud, 1988) .

AIM OF THE PRESENT WORK

The aim of this study is :

1- The isolation and identification of L. monocytogenes from the different pathological specimens , in pregnant women and neonates .

2- Serological examination for antibodies to L. monoc-ytogenes during pregnancy and its relation to previous abortions or still births.

3- To know more about the epidemiology and mode of transmission of the disease .

4- Furthermore , the present work aimes to study the in vitro , antibiotic susceptibility and synergy of the L. monocytogenes isolated strains , to the following antibiotics : **Ampicillin , Gentamicin and Ceftotaxime** . Killing curves of these antibiotics while single or in combination will be studied at different concentrations .

CHAPTER 2

REVIEW OF LITERATURE