

Prevalence of *Listeria monocytogenes* in Pregnant Women in Khoram Abad, Iran

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(Received: 24 August 2013; accepted: 18 October 2013)

Listeria monocytogenes is the bacterium that causes the infection listeriosis. Symptomatic infection most commonly occurs in pregnant women, infants, elderly and the immunosuppressed. The aims of current study is to determine the prevalence of listeriosis in pregnant women referred to khoram abad hospital in Iran. for this propuse, 100 vagina swap from pregnant women were subjected for PCR. The results showed negative reaction in all samples. The difference reported among the studies can be due to differences in the population under study include race, culture, geographical region, nutrition and laboratorial diagnosis methods.

Key words: *Listeria monocytogenes*, Pregnant women, Iran.

Listeria monocytogenes is the bacterium that causes the infection listeriosis. It is a facultative anaerobic bacterium, capable of surviving in the presence of oxygen. It can grow and reproduce inside the host's cells and is one of the most virulent food-borne pathogens, with 20 to 30 percent of clinical infections resulting in death¹.

L. monocytogenes can act as a saprophyte or a pathogen, depending on its environment. When this bacterium is present within a host organism, quorum sensing causes the up regulation of several virulence genes. Depending on the location of the bacterium within the host organism, different activators up regulate the virulence genes. SigB, an alternative sigma factor, up regulates Vir genes in the intestines, whereas PrfA up regulates gene expression when

the bacterium is present in blood². Little is known about how this bacterium switches between acting as a saprophyte and a pathogen; however, several noncoding RNAs are thought to be required to induce this change.

Most healthy people infected with listeriosis are asymptomatic or only have a mild febrile illness. Symptomatic infection most commonly occurs in pregnant women, infants, elderly and the immunosuppressed. In pregnant women, meningitis rarely occurs. Instead, they often present with fever or flu-like illness. The infection may also result in abortion or is transmitted to the fetus to cause neonatal infection. It was reported in a recent review of listeriosis during pregnancy that fever was the most common symptom³. Twenty percent of the prenatal listeriosis cases resulted in spontaneous abortion or stillbirth and among the remaining neonates, 68.3% were infected by *Listeria*. Infected neonates were most commonly diagnosed with pneumonia, sepsis or meningitis. Meningitis alone, or in

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combination with sepsis or pneumonia, was associated with a worse prognosis. Less frequently, newborns may present with granulomatosis infantiseptica, which is characterized by disseminated abscesses or granulomas in multiple internal organs. Abortion can occur at any time during pregnancy but more commonly in the second half. Perinatal infection is acquired during the last trimester⁴.

The aims of current study is to determine the prevalence of listeriosis in pregnant women referred to khoram abad hospital in Iran.

METHODS

Bacterial Strains

100 vagina sample were collected from pregnant women referred to khoram abad hospital

during 2011 to 2012. Swap sample of vagina obtained and proceeded for further analysis by PCR.

DNA extraction

DNA was extracted according to kit structure (Bioneer, South Korea).

PCR

PCR was performed with specific primer to determine the presence of *L. monocytogenes* in clinical isolates. *Listeriolysin O* (LLO) was chosen to show the presence of *L. monocytogenes*. the specific primer were as listed in table 1.

RESULTS AND DISCUSSION

Among 100-vagina sample collected from pregnant women, the findings showed no detection of *L. monocytogenes*. Reports of listeriosis from

Table 1. Specific primer for identification of *L. monocytogenes*

	Primer sequences	(C) Anneal temp	PCR product(bp)
Forward Primer	5_ GAATGTAAACTTCGGCGCAATCAG_3	65	388
Reverse Primer	5 _ GCCGTCGATGATTTGAACTTCATC_3		

humans in Iran are uncertain, either because of failure to identify the isolate, its rarity, improper isolation techniques or lack of awareness. In the present study, of 100 samples collected from women no positive reaction occurred (Figure 1).

Different incidence rates of *L. monocytogenes* has been reported from several countries. The incidence rate of *L. monocytogenes*

in this study (0%) was not consist with the earlier reports on the isolation of *L. monocytogenes* from three of 100 (5), four of 305 (6) and one of 958 (7). The difference reported among the studies can be due to differences in the population under study include race, culture, geographical region, nutrition and laboratorial diagnosis methods.



Fig. 1. S= Marker, D= Positive control, A-R= negative reactions

Until now, *L. monocytogenes* was thought to be susceptible to antibiotics used for listeriosis treatment including penicillin combined with aminoglycosides. However, many resistant strains have been detected in food and various cases of listeriosis in recent years⁸. Further investigations is needed to determine the real prevalence of *L. monocytogenes* during different years in Iran.

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