

# Serotypes of *Listeria monocytogenes* isolated from human cases of listeriosis in Portugal.

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## Introduction

Listeriosis is a severe infection caused by *Listeria monocytogenes* particularly among the elderly, very young and immunocompromized individuals and has also been associated with late-term miscarriages in pregnant women. There are 13 recognized serotypes of *L. monocytogenes*, and most human infections involve serotypes 1/2a, 1/2b and 4b. The information available regarding *L. monocytogenes* infections in Portugal is limited. The main objective of this study was to describe the listeriosis cases occurred in Portugal in the last years and to characterize by serotyping the strains isolated from each case when these were available.

## Materials and Methods

The information of cases of listeriosis in Portugal was collected by contact with the Services of Clinical Pathology of several hospitals and with the National Institute of Health Ricardo Jorge – Porto (INSA - Porto). They were asked to fulfilling an inquiry about each case including the date of isolation, age and sex of patient, factors of predisposition to the illness, clinical manifestations, biological product from which the bacterium was isolated and the clinical evolution of the sick person.

Isolates were characterised using antisera against O and H antigens according to manufacturers instructions (Denka Seiken Co., Ltd, Tokyo, Japan).

## Results

At least 46 cases of cases of listeriosis occurred in Portugal between 1994 and 2004. These data demonstrate a low incidence of the infection, although the death rate was higher than 26%. From these cases only 39 strains were supplied from public health laboratories. 6 strains were from perinatal cases, 19 were from non-perinatal cases and in 14 cases the origin of strains was unknown as shown in Table I.

Two different serotypes were found. 77% of the strains which included all the strains from perinatal cases were serotype 4b, 7 strains were serotype 1/2b (18%) and 2 were non typeable. Results found in this study are in agreement with those found in other countries.

Table I – Serotypes of Human listeriosis found in Portugal between 1994 and 2004

Case	Year of isolate	Age/sex	Origin of isolate	Serotype	Disease Evolution	Case	Year of isolate	Age/sex	Origin of isolate	Serotype	Disease Evolution
1	1994	New born/M	Liver	4b	Fatal	20	2001	85 / M	Blood	NT	Fatal
2	1996	Unknown / M	Blood / CSF	4b	Unknown	21	2002	Unknown / M	CSF	4b	Unknown
3	1997	Unknown	Blood	4b	Unknown	22	2003	74 / F	CSF	4b	Favorable
4	1997	Unknown	CSF	4b	Unknown	23	2003	31 / F	Placenta	NT	Favorable
5	1997	Unknown	CSF	4b	Unknown	24	2003	New born/ DN	Blood	4b	Favorable
6	1998	54 / M	Blood	1/2b	Unknown	25	2003	67 / M	Blood / CSF / ascitic fluid	4b	Fatal (septic chock)
7	1998	Unknown	CSF	4b	Unknown	26	2003	85 / F	CSF	1/2b	Unknown
8	1999	Unknown	CSF	4b	Unknown	27	2003	50 / M	Blood / CSF	4b	Fatal
9	1999	Unknown	CSF	4b	Unknown	28	2003	48 / M	CSF	4b	Favorable
10	1999	Unknown	Blood	4b	Unknown	29	2004	65 / M	Blood	4b	Unknown
11	1999	New born/ F	Lung	4b	Fatal	30	2004	Unknown	CSF	4b	Unknown
12	2000	48 / M	CSF	1/2b	Unknown	31	2004	73 / F	Blood	4b	Cerebral vascular accident
13	2000	25/F	Vaginal swab	4b	Premature childbirth	32	2004	54 / M	Blood	1/2b	Fatal
14	2000	New born/ DN	Blood	4b	Favorable	33	2004	Unknown / M	Blood / CSF	1/2b	Unknown
15	2000	Unknown	Blood	4b	Unknown	34	2004	74 / M	Blood	1/2b	Fatal
16	2000	Unknown	Blood	4b	Unknown	35	2004	New born	Blood	4b	Favorable
17	2000	Unknown	CSF	4b	Unknown	36	2004	1 / F	Blood	4b	Unknown
18	2000	Unknown	Blood	4b	Unknown	37	2004	44 / M	Blood	4b	Fatal
19	2001	41/ M	Blood	4b	Fatal	38	2004	57 / M	Blood	1/2b	Coma
						39	2004	46 / M	Blood	4b	Unknown

## Conclusions

In Portugal, listeriosis is not a reportable disease, and data available about this infection are scarce. In a retrospective study, the incidence of the infection was found to be low, 35 cases between 1994 and 2003. The death rate, however, was higher than 17% (Almeida et al. 2005). Results presented in Table I clearly show the difficulties found in obtaining data about the cases.

According to McLaughlin (1990) serovar 4b is the most common, followed for serovar 1/2a and 1/2b as agents of listeriosis. Serovares 4b and 1/2b are the most usually isolated in perinatal and non-perinatal listeriosis, respectively. In this survey two different serotypes were found: 1/2b and 4b. 77% of the strains, which included all the strains from perinatal cases, were serotype 4b, 7 strains were serotype 1/2b (18%) and 2 were non typeable, and none was 1/2a.

This study was an initial step in the epidemiological studies about listeriosis in Portugal. As it has a poor discrimination other typing methods will be used in order to identify clusters that could had been responsible for sporadic or epidemic outbreaks of listeriosis in Portugal.

## References

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