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Listeriosis- an Irish clinical perspective-

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May 2023

University *of* Galway.ie

A case

JB 67 Male
Rheumatoid arthritis on rituximab (biological agent) for 6 years

Disease well controlled and generally well,

Working part time

Lives alone with regular contact with son and daughter

Driven to ED by son and daughter at 11.00 pm Friday night

The case presented is a composite of details from a number of patients. The details do not correspond to any individual patient.

A case

Has been off form for a week
Son called this evening about 8pm and found him drowsy and confused
He is not well able to give an account of his illness or answer questions
Temp 38.2 Pulse 88/min, BP 110/60 RR 16
No other clinical features on examination localizing infection to any site other than CNS
White cell count 10.6 (NR 4.0-11.0)
C-reactive Protein 54 (NR less than 7)

Clinical uncertainty and urgency

At around midnight
Most likely has an infection, probably bacterial
Not clear what the diagnosis is

He has clinical features may be consistent with CNS infection such as meningitis or encephalitis or brain abscess

Blood culture sent (will take time)
CSF sample – deferred pending CNS imaging
CNS imaging pending

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Clinical uncertainty and urgency

Treatment needs to start now – guideline ceftriaxone, amoxicillin, vancomycin and acyclovir

Amoxicillin –specifically to cover for *Listeria monocytogenes* (he has risk factors)

Clarification next day

CNS Imaging – abnormality of R temporal lobe

CSF White cells 127/cmm (NR less than 5)
85% mononuclear cells

L. monocytogenes **(& other bacterial species) DNA not detected**
HSV DNA detected

Diagnosis – Herpes simplex encephalitis – stop ceftriaxone, amoxicillin and vancomycin continue with aciclovir

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Clinical presentation of *L. monocytogenes* infection

In immunecompromised, in pregnancy and in infants – very hard to differentiate from other infections

Isolation from blood culture takes time – usually two days or so but identification after culture is faster (MALDI-TOF)

Detection in CSF – first get a sample,
not likely to be detectable on microscopy,
culture takes time – usually a day
rapid molecular testing increasingly available and very useful but not perfect

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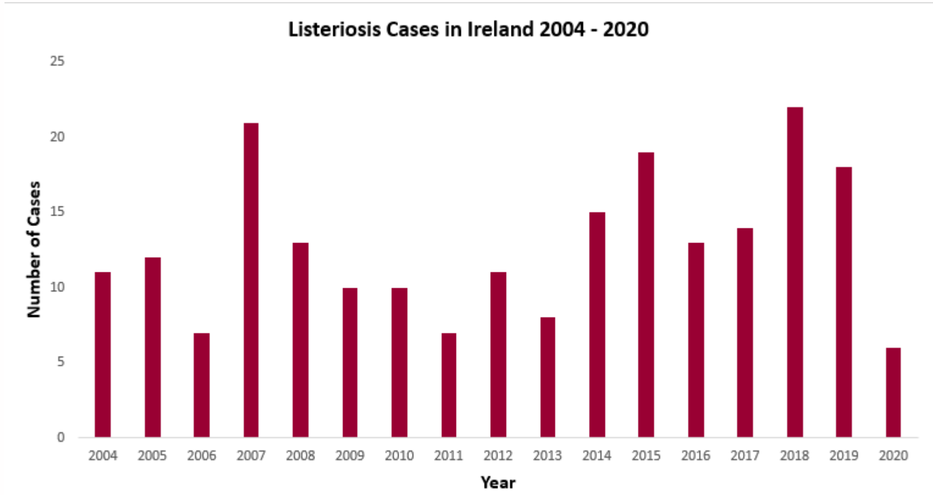
Clinical impact – start treatment in a lot of people who don't have *L. monocytogenes*

Uncommon disease

High mortality

Very non-specific clinical features

Increasing size of cohort of people at risk



HPSC

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If the man had *L. monocytogenes* infection

Notifiable disease (dual notification) – legal requirement

Intrinsic antimicrobial resistance is a problem
Amoxicillin and Co-trimoxazole the key options
Acquired antimicrobial resistance is not a problem

Request that all isolates are sent to National Reference Laboratory Service at Galway for characterisation (not a legal requirement)

If the man had *L. monocytogenes* infection what did he get it from?

What did you eat on May 11th?

Incubation period is long (up to 90 days)

Recall of foods consumed is poor
Many potential food sources are “invisible”

The food produced and the food eaten and the person who ate it

Even if food as produced did not have had detectable *L. monocytogenes* or had a very low level *L. monocytogenes*

How was it stored and prepared?

The susceptibility to infection of the person who ate it?

Reference Laboratory Information

2016 – date 77 isolates (non duplicate)
Predominantly from blood & balance mostly from CSF

5 to 16 isolates per year

Predicted serotypes 4b, 1/2a and small number of 1/2b
23 different sequence types and some unassigned
ST 1, 2, 6 and 37 most common

6 clusters of 2 to 3 isolates each

Making connections - Data sharing

Data sharing agreement with DAFM to compare sequence data

EU Platform EPIS to facilitate sharing across EU/EEA

Matches with isolates from other countries (EPIS)

Summary 1

Uncommon disease with high reported mortality

Defined risk groups are increasing in size

Non-specific clinical features

Most people who start treatment for *L. monocytogenes* do no have it

Specific diagnosis is based on laboratory detection
New technologies are improving speed of detection/identification somewhat

Summary -2

Linking cases to a source food is very difficult

Submission of isolates to reference laboratory is voluntary, generally good but not complete

Isolates are diverse and clusters are infrequent - suggests there is no single product or FBO that accounts for a high proportion of infection in Ireland

Sequencing and data sharing probably the best bet for identifying source of outbreaks or products or FBOs that are persistent low level contributors to human disease

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Thank you

For listening

Thanks to
Niall DeLappe
Genevieve Devanne
Alma Touhy
Geraldine Doran
Paula Ward
& all colleagues associated with Reference Laboratory

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Abstract May 2023

Invasive infection with *Listeria monocytogenes* (Lm) is uncommon. The proportion of the population at risk has changed with an aging population and increased use of long-term immune-suppression. The impact of Lm on clinical practice is disproportionate to the number of cases. Invasive infection is associated with a high risk of death. The illness, meningitis or blood stream infection, generally cannot be differentiated reliably from other serious infections based on clinical features. Lm is intrinsically resistant to third generation cephalosporins. Third generation cephalosporins are a key to the initial treatment of suspected bacterial meningitis. Therefore, Lm must be considered and must be treated up-front in a large number of seriously ill patients in whom it is not the cause of disease. Treatment directed towards Lm may be continued for two days or more until diagnostic tests provide assurance that it is not the cause of infection. Nucleic Acid Amplification Tests (NAATs) and the MALDI-ToF for culture identification have reduced the time required to identify Lm or an alternative pathogen. Invasive Lm is a notifiable infectious disease in Ireland. When Lm is identified in a clinical laboratory, prompt submission of the isolate to the reference laboratory is recommended to support linking of cases to other cases and potentially to sources of infection.

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