

Adult bacterial meningitis: new consensus statement and unusual cases

Bacterial meningitis is a medical and infectious disease emergency. Meningococcal meningitis is perhaps the most feared infection in the UK with many sporadic cases getting a disproportionate amount of media attention.

The infection affects predominantly children and young adults. For example, in a recent epidemiological survey of community-acquired bacterial meningitis in adult (>16 years) patients from Iceland, meningococci accounted for 90% of the infections in the 16–20 year age group and only 26% of the infections in those older than 45 years (Sigurdardottir et al, 1997). In the latter group 38% of the cases were caused by pneumococci and 14% caused by *Listeria monocytogenes*. Group B streptococcal infections accounted for only 1% of the infections.

This survey would be considered fairly representative of the epidemiology in Scotland where there are about 40 adult (aged 16+) cases reported in 1998 with a fatality rate between 10–20%. Therefore, it is timely that the two case reports in this issue of the journal, p. 138, 140) bring to our attention the increasing prevalence of two less common but important causes of adult bacterial meningitis.

LISTERIA MENINGITIS

Listeria meningitis in a previously well 39-year-old non-pregnant patient would by all accounts be considered unusual. It is an important diagnosis in adults over the age of 50 years, especially if they have an underlying condition that alters cell-mediated immunity, for example immunosuppression by chemotherapy or steroids, diabetes mellitus, collagen vascular diseases or cancer. Indeed, *Listeria* is the commonest cause of bacterial meningitis in patients with cancer.

The patient in this case did not have any such risk factors. However, she exhibited some typical characteristics of listeriosis, i.e. confusion, minimal nuchal rigidity and cranial nerve palsies, but these are not specific enough to differentiate them from other aetiologies. Other features (not present in this patient) include seizures and movement disorders.

Typical CSF findings include a negative CSF Gram stain (only positive in 40% of cases), normal CSF glucose levels (in >60% of cases) and the predominance of mononuclear cells in the CSF. Blood cultures are likely to be positive in 75% of cases (Lorber, 1997). Whether this patient should have received ampicillin at the outset and whether it would have made a difference in outcome is a moot point. Despite the patient's age and lack of overt underlying risk factors, the presence of clinical features suggestive of brainstem involvement may have persuaded one to cover against the possibility of listeriosis or herpes simplex virus infection at the onset as opposed to 6 hours after admission.

However, it is easy to be wise after the event, and after considerable deliberations the forthcoming 'British Infection Society Consensus Statement on diagnosis, investigation, treatment and prevention of bacterial meningitis in adult patients in the United Kingdom with presumed normal immunity' recommends as empiric therapy ceftriaxone 2 g intravenously 12-hourly or cefotaxime 2 g intravenously 6-hourly for adults aged 18–50 years and adding ampicillin 2 g intravenously 4-hourly to those aged 50 and over (Welsby P et al, personal communication, 1999).

This therapy can be altered in light of positive microbiology, other inves-

tigations and clinical progress. One may argue that a penicillin is preferable in adults of all age groups as the third generation cephalosporins are clearly deficient in this area (Espaze and Reynaud, 1988).

Finally, despite this unusual case of listeriosis, one must recognize that with the expanding population of immunosuppressed persons listeriosis will continue to be a serious problem. When these people are in contact with the medical community, health-care professionals and physicians must take every opportunity to educate the patients of the increased risk and its prevention. Physicians must be vigilant of potential clinical cases and may wish to report cases of listeriosis to their local public health department.

GROUP B STREPTOCOCCUS

The occurrence of group B streptococcus (*Streptococcus agalactiae*) meningitis in a healthy young male is clearly unusual but presumably reflects the increased incidence in recent years as a cause of adult (men and non-pregnant women) morbidity and mortality. However, meningitis remains infrequent with only 64 cases reported in the literature to date (Domingo et al, 1997), although it is rare in healthy adults and is associated with a good prognosis (as in the reported case).

The increased number of cases are predominantly (86% in one study) seen in those patients with severe underlying conditions reflected in the rather high case fatality rate. Sequelae in those who survive are infrequent. Additionally, advanced age and the occurrence of neurological and extraneurological complications spell a poor outcome (Domingo et al, 1997).

The clinical presentation is indistinguishable from other causes of purulent meningitis but there is typically another focus of infection (endometrium, respiratory tract) which should be sought. Bacteraemia is a common finding. High-dose parenteral penicillin possibly combined

with gentamicin or monotherapy with a third generation cephalosporin are usually effective. **HM**

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KEY POINTS

- Meningococci and pneumococci are the most common causes of adult bacterial meningitis.
- *Listeria monocytogenes* is an important cause of meningitis in patients aged over 50 years or those with underlying conditions that affect cell-mediated immunity (e.g. cancer).
- Gram stain is only positive in 40% of cases of *Listeria* meningitis.
- For adults aged over 50 years, 2 g ampicillin intravenously 4-hourly should be added to the empiric regimen of ceftriaxone or cefotaxime.
- Age greater than 65 years, the presence of hypotension, altered mental status or seizures at presentation are poor prognostic markers.
- Group B streptococcus meningitis is typically associated with another focus of infection.

Domingo P, Barquet N, Alvarez M, Coll P, Nava J, Garau J (1997) Group B streptococcal meningitis in adults: report of twelve cases and review. *Clin Infect Dis* **25**: 1180–7

Espaze EP, Reynaud AE (1988) Antibiotic susceptibilities of listeria: in vitro studies. *Infection* **16**(suppl 2): S160–4

Lorber B (1997) Listeriosis. *Clin Infect Dis* **24**: 1–11

Sigurdardottir BS, Bjornsson OM, Jonsdottir KE, Erlendsdottir H, Gudmundsson S (1997) Acute bacterial meningitis in adults. A 20 year overview. *Arch Intern Med* **157**: 425–30