Reviewer's report

Title: Clinical features, acute complications, and outcome of Salmonella Meningitis in 24 Neonates and Infants in Taiwan

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Reviewer: Joan Robinson

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The authors report short and long-term outcome on 24 children with Salmonella meningitis in the first 12 months of life. I believe previous studies have involved smaller numbers of patients with less complete follow-up.

Mandatory revisions:

The title is appropriate, but should clarify the age group that was studied.

Abstract

1. First sentence of methods – What do you mean by “primary patients”? The same term is used multiple places in the manuscript and I never could figure out what you meant.

2. In Results where complications are listed, you need to clarify that you mean intracranial abscess. Also, “abducens” is spelt incorrectly her and later in the body of the manuscript.

3. Conclusion – A word is missing from the first sentence. In the second sentence, it is not clear what you mean by “a refining procedure”.

Background

4. In the first sentence, “central nervous system infections of childhood bacterial meningitis” does not make sense.

5. In the sentence “The Previous reports suggested that Salmonella meningitis was associated with a very high prevalence (50-90%) of morbidity presenting with variable complications, and a high mortality rate of up to 50-70 %.” the word “previous” should not be capitalized.

Methods

6. Why did you not enroll patients infected after 1994? Follow-up was only until school age so one would think even those enrolled in 2000 could all have completed follow-up by the time the data was collected. What was the upper limit of age for children you considered to be eligible?

7. In methods where you talk about language development, you need to clarify that you are referring to SD from the mean.
8. You need to briefly explain the analysis that is presented in Tables 3 and 4.

9. Everything should be in the same order in Methods as in Results.

Results

10. It would be unusual if all eligible patients came for follow-up years later. You need to say how many eligibles were not followed up and how many had incomplete testing.

11. You state “Pathogens were isolated from CSF specimens in all patients” but this is redundant as it was required for study entry.

12. The CSF findings you required are very specific. How many patients were excluded as they grew Salmonella but did not fit the CSF criteria?

13. You state “Seizures were noted in 15 (63%) of the twenty-four patients before admission. Seizures occurred in thirteen (54%) during hospitalization”. What was the overlap in these two groups? This helps the reader to know how many children had no seizures.

14. In the sentence “CSF/blood glucose ratio < 0.5 was revealed in about 80% of those cases and CSF protein levels > 200 mg/dl in about a half of the patients”, I would reword to omit “revealed” and give the exact percentages rather than “about 80%” and “about half”. The latter is appropriate in a discussion but not in results. Also, one should not start a sentence with an abbreviation.

15. Where you state “The twenty-four patients were treated with fourteen different antimicrobial regimens, and most received chloramphenicol or ampicillin in combination with one of the third generation antibiotics (cefotaxime, moxalactam, ceftriaxone, and ceftazidime)”, I think you mean “third generation cephalosporins”.

16. For the patient who relapsed, it would be helpful to tell the reader which antibiotics they received for the 56 days. Also, it would be useful to mention what complication they had. It seems likely they had a complicated initial course if they were treated for 8 weeks.

17. Where you state “During hospitalization, brain sonography and/or CT scan and/or ventricular tap were performed to detect acute intracranial complications, and to diagnose ventriculitis. Those complications mainly included hydrocephalus (50%), subdural collection (42%), cerebral infarction (33%), ventriculitis (25%), empyema (13%), abscess (8%), and cranial nerve palsy (8%)”, I would omit “mainly” and list all complications if practical. I would clarify how many had sonography (N=?), CT (N=?), and ventricular tap (N=?). The reader will want to know if your percentages include all patients or just the ones with imaging.

18. Top of Page 10 – “detailedly” is not a word. Spell-check should have found that if you used it.
19. When you present outcome data, I would begin by telling the reader how many children fell into each of the 5 categories you so nicely outlined in methods by stating as you do later: “Overall, good outcome was in six (28.6%) of twenty-one survivors, mild adverse outcome in three (14.2%), moderate in six (28.6%), and severe in six (28.6%).” I would say “Death occurred in 3 children (14.2%), good outcome in 6 (28.6%) of twenty-one survivors, mild adverse outcome in 3 (14.2%), moderate adverse outcome in 6 (28.6%), and severe adverse outcome in 6 (28.6%). “

20. You need to provide definitions for “developmental delay” and “motor disabilities” in the methods if you are going to use these terms in the results as they mean different things to different readers.

21. Last sentence Page 11 – What do you mean by “consciousness change”? This is an awkward phrase. Again, a definition must be used in methods for any ambiguous term used in results.

Discussion

22. There are lots of good ideas in this discussion. However, I would try to shorten the discussion by making each sentence more concise. I would present ideas in the following order:

- summary of findings
- compare your findings to other studies looking at outcome of Salmonella meningitis, providing some detail re the number of patients and length of follow-up in previous studies
- compare your outcome and that of other studies of Salmonella to outcome with other organisms, including a discussion of the prognostic factors you identified
- offer explanations for your high rate of poor outcome
- mention limitations of the study
- very brief conclusion about the practical take-home message for the reader and what further research should be done

23. In general, the discussion is less articulate than the rest of the article. You may want to have someone for whom English is a first language (even a non-medical person) help you with wording.

Table 1

24. The phrase “onset before admission” needs clarification. Do you mean “onset of symptoms before admission”?

25. The phrase “clinical features at time of diagnosis” could maybe more accurately be called “clinical features present between onset of symptoms and day of diagnosis”

26. For “Salmonella isolates”, presumably not all samples were submitted on all 24 children. Please clarify.
27. The term “disability” is vague. It needs to be defined in a footnote. One could put something like: “ongoing seizures (N=?), loss of motor milestones (N=?) etc.

Table 2

28. Where possible, ranges should be provided for all parameters. It is way more useful for the reader to know if one ever has this diagnosis with no CSF pleocytosis than to know the mean number of CSF WBCs. What do you mean by “Positive Gram negative Rods”? It seems unlikely all Gram stains would be positive.

Table 3

29. Excellent table. I would also add in your 4 categories you outlined in the methods of good outcome, mild adverse outcome, etc.

Table 4

30. You should use the same terminology you used in the methods for the outcomes (good, mild adverse, moderate adverse and severe adverse) instead of mild and major sequelae. Multivariate analysis using the parameters where p <0.10 would be very interesting.

Level of interest: An article of importance in its field

Quality of written English: Needs some language corrections before being published

Statistical review: Yes, and I have assessed the statistics in my report.

Declaration of competing interests:

'I declare that I have no competing interests'