Author's response to reviews

Title: A retrospective study of central nervous system shunt infections diagnosed in a university hospital during a 4-year period

Authors:

Huseyin Turgut (huturgut@yahoo.com)
Suzan Sacar (suzansacar@yahoo.com)
Semra Toprak (drsemratoprak@hotmail.com)
Bayram Cirak (bayramcirak@yahoo.com)
Erdal Coskun (ercoskun@yahoo.com)
Ozlem Yilmaz (ozlem-23@mynet.com)
Koray Tekin (koraytekin@hotmail.com)

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Author's response to reviews: see over
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Title: A retrospective study of central nervous system shunt infections diagnosed in a university hospital during a 4-year period

Authors:
Huseyin Turgut,  (huturgut@pamukkale.edu.tr)
Suzan Sacar,   (suzansacar@yahoo.com)
Semra Toprak,  (drsemratoprak@yahoo.com)
Bayram Cirak,  (bayramcirak@hotmail.com)
Erdal Coskun,  (ercoskun@yahoo.com)
Ozlem Yilmaz, (drozlem23@my.net)
Koray Tekin,  (koraytekin@hotmail.com)

The Biomed Central Editorial Team

Object: MS: 1233714058740802 - A RETROSPECTIVE STUDY OF CENTRAL NERVOUS SYSTEM SHUNT INFECTIONS DIAGNOSED IN A UNIVERSITY HOSPITAL DURING A 4-YEAR PERIOD

Thank you for consideration of our manuscript for publication in your journal.
We have reviewed the above manuscript according to your reviewer’s comments.

Reviewer 1: James van Dellen

Major Compulsory Revisions (that the author must respond to before a decision on publication can be reached)
The message of the report would be far stronger if it concentrated on the microbiological aspects of the data available. In particular they are reporting a 'regional' higher percentage of non-staph infections and a discussion on the likely reasons for this and how this may alter the management of shunt infections would strengthen the submission. The retrostective nature of the data makes the analyses and deductions less compelling and are not in the present format significantly adding to the existing body of the literature.

- We added that previously published microbiologic profile of CSF shunt infections is showed Table 4. But we haven’t got published data about our regional non-staph infections.
Minor Essential Revisions (such as missing labels on figures, or the wrong use of a term, which the author can be trusted to correct)

There are grammatical and contextual corrections that will need to be made:

Abstract: line 1 monitoring replaced by management

- Line 1 “monitoring” was replaced by “management”

Background: as above

Results: line 3 details of Medtronic need to be provided

- The type of the shunt used was a medium pressure type shunt
  (burr-hole valve medium pressure, from Medtronic).

Discussion: lines 9,10 replace ‘incompetent..of’ by ‘insufficient to determine’

line 43 replace preliminary by predisposing

line 47 suggest move In the time..... care unit. ‘to after ..’intensive care unit.’ in line 44.

- Done

Discretionary Revisions (which the author can choose to ignore)

Abstract: line 6 inserted = insertions; ‘studied..factors;’ replaced by ‘evaluated using:’

line 7 delete attack

line 8 delete comma after infection and insert ‘features and’

line 10 myelomeningocel sp.error; delete ‘most’

line 11 common = commonest

- line 6 inserted = insertions; “studied..factors;” was replaced by “evaluated using:”
- line 7 the word “attack” was deleted
- line 8 comma after infection was deleted and “features and” was inserted.
- line 10 the word “myelomeningocel” was replaced by “myelomeningocele”; the word ‘most’ was deleted
- line 11 “common” was deleted, “commonest” was added

Conclusions: line 1 delete ‘It...that’ replace ‘in’ with ‘In’; commas after ‘antibiotics’ and ‘testing’

Background: line 6 insert ‘reported to be’ before ‘associated’

line 8 insert ‘not unusually’ after ‘requires’
The sentence which was starting from line 1, “The CNS shunt placement operations that were made in neurosurgery clinic between 2000 December and 2004 December were assessed retrospectively” were replaced by the sentence “The clinical notes of 124 consecutive patients having CNS shunt placement operation for various etiology between 2000 December and 2004 December were reviewed of Pamukkale University, Medical School, Department of Neurosurgery. Operations were perform by two neurosurgeon. One of them (B.C.) has an extraexpertise on pediatric neurosurgery.”

The sentence which was starting from line 1, “The CNS shunt placement operations that were made in neurosurgery clinic between 2000 December and 2004 December were assessed retrospectively” were replaced by the sentence “The clinical notes of 124 consecutive patients having CNS shunt placement operation for various etiology between 2000 December and 2004 December were reviewed of Pamukkale University, Medical School, Department of Neurosurgery. Operations were perform by two neurosurgeon. One of them (B.C.) has an extraexpertise on pediatric neurosurgery.”

Methods: line 1 delete 'made' and insert 'carried out'; insert 'a' after 'in'
line 2 assessed retrospectively should be transposed; 'inserted' = 'insertions'
- line 1 and 2 The first sentence was deleted.
line 3 delete 'were....factors;' and insert 'analysed according to'
line 4 delete 'attack'; delete comma after 'infection' and insert 'features and' after 'infection'; delete 'And also'
line 5 biochemical = Biochemical; insert 'the' after 'from' and report = 'clinical notes'
line 6 delete 'following' and 'the' = 'a' and 'of' = 'in'
line 7 delete 'must be seen' and insert 'was present'
line 13 'catheter' = 'procedure'
- The sentence which was starting from line 1, “The CNS shunt placement operations that were made in neurosurgery clinic between 2000 December and 2004 December were assessed retrospectively” were replaced by the sentence “The clinical notes of 124 consecutive patients having CNS shunt placement operation for various etiology between 2000 December and 2004 December were reviewed of Pamukkale University, Medical School, Department of Neurosurgery. Operations were perform by two neurosurgeon. One of them (B.C.) has an extraexpertise on pediatric neurosurgery.”

- line 5 the words “were....factors;” were replaced with “analysed according to”
- line 6 the word “attack” was deleted. comma was inserted after the word “infection” and “features and” were inserted after the word “infection”;
- line 7 the words “And also” deleted; “biochemical” was replaced with “Biochemical”; the words “the” was inserted after the word “from” and “report” replaced by “clinical notes”
- line 8 the word “following” was deleted and “the” was replaced with “a” and “of” was replaced “in”
- line 9 the words “must be seen” were replaced with the words “was present”

- line 15 the word “catheter” was replaced with the word “procedure”
- line 16,17 A sentence “Only one dose prophylactic antibiotic (cefuroxime or ampicillin) was given perioperatively to the patients.” was added the and of the Methods.
Results: line 1 'along = 'in'
  • line 1 the word “along” was replaced with the word “in”

line 2 'shunts' = 'shunt'; insert 'a' after 'was'; ‘Burr’ = 'burr' and insert 'from' after 'pressure,'
line 4 '30' = 'Thirty'
line 5 ‘10’ = ‘Ten’
  • line 3 the word “shunts” was changed with the word “shunt”; “a” was inserted after “was”;
    “Burr” was changed with “burr”
  • line 4 the word “from” inserted after “pressure”
  • line 6 “30” was replaced by “Thirty”
  • line 7 “10” was replaced by “Ten”

line 8 myelomeningocel sp.
line 9 'only in' transpose; delete 'of them' = 'was'
line 10 delete 'was'
  • line 17 “only in” was transposed ; “of them” replaced by “was”
  • line 18 the word “was” was deleted

line 13 'two-third' = 'two-thirds'; delete 'observed' = 'of the'
line 14 delete 'attacks' = 'events'; insert 'were' after 'counts'; delete 'of them.'
line 16 delete semi-colon after 'cases' and insert 'and the' after 'cases'
line 17 insert 'therapy' after 'glycopeptide.'
line 18 delete comma after 'infections'; insert 'and after' infections'
  • line 21 “two-third” replaced “two-thirds”; the word “observed” was replaced with “of the”
  • line 22 the word “attacks” was replaced by ”events”; “were” was inserted after “counts”; the
    words “of them.” was deleted
  • Line 24 semi-colon after “cases” was deleted; the words “and the” were inserted after “cases”
  • Line 25 the word “therapy” was inserted after the word “glycopeptide.”
  • Line 26 comma was deleted after “infections”; the word “and” was inserted after “infections”

line 21 insert 'of' after 'because'
line 23 insert comma after '[7]'; ‘The’ = ‘the’
line 25 ‘patients’ = ‘patient’
line 26 ‘myelo meningocel’ sp; delete ‘of the’; ‘suggested’ = ‘suggest’; insert ‘the’ after ‘that’
line 27 insert comma after ‘however’; insert the after ‘study,’; delete ‘incompetent....of’ = ‘insufficient
    to determine’
line 29 ‘system’ = ‘systems’
Line 31 insert 'generally after 'are'; comma after 'however'
Line 33 insert 'the' after 'in'
Line 35 insert 'have after rates'
Line 38 replace 'of' by 'by'
Line 39 'nonspecific' = 'non-specific'; delete ';'; 'nause' = 'nausea'
Line 55 'Despite of' = 'Contrary to'
Line 61 'like' = 'such as'; insert 'treatment' after 'following'; insert 'the' after 'in'; full stop/period after 'unit'; 'colonization' = 'Colonization'
Line 62 insert 'were also contributory factors.' after 'disease'
Line 63 'severely' = 'also'
Line 67 'antibiotic' = 'antibiotics'
Line 70/71 'the others' = 'other authors'
Line 74 'with' = 'as a consequence of'
Line 75 'choroids' = 'choroid'

• Line 3 the word “of” was inserted after “because”
• Line 5 comma after “[7]” inserted; “The” replaced by “the”
• Line 7 “patients” was replaced by “patient”
• Line 8 The word “myelomeningocel” was replaced by “myelomeningocele”; the words “of the” were deleted; “suggested” was replaced by “suggest”; “the” was inserted after “that”
• Line 9 comma was inserted after “however”; “the” was inserted after “study,”; the words “incompetent...of” were replaced with words “insufficient to determine”
• Line 12 the word “system” was inserted word “systems”
• Line 14 the word “generally” was inserted after “are”
• Line 15 comma was inserted after “however”
• Line 16 the word “the” was inserted after the word “in”
• Line 19 the word “have” was inserted after word “rates”
• Line 22 “of” was replaced by “by”; the word “nonspecific” was replaced with “non-specific”
• Line 23 “;” was deleted; “nause” was replaced by “nausea”
• Line 40 the words “Despite of” were replaced by “Contrary to”
• Line 46 the word “like” was replaced by the word “such as”; the word “treatment” was inserted after “following”; “the” was inserted after “in”
• Line 47 full stop was inserted after “unit”; “colonization” was replaced by “Colonization”
• Line 48 the words “were also contributory factors.” inserted after the word “disease”
• Line 49 the word “severely” was replaced by “also”
• Line 53 the word “antibiotic” was replaced by “antibiotics”
• Line 56 the words “the others” were replaced by the words “other authors”
• Line 60 the word “with” was replaced by “as a consequence of”, the word “choroids” was replaced by “choroid”

Conclusion: line 3 'take' = 'form'; signifficant sp.; 'part' = 'percentage'
line 4 delete ‘attacks’; ‘first’ = ‘firstly’
line 5 ‘technique’ = ‘techniques’; ‘situ’ = ‘place’
line 6 ‘second’ = ‘secondly’
Table 1: line 4 ‘myelomeningocel’ sp.
line 9 delete ‘operation’
• Line 3 the word “take” was replaced with “form” ; the word “part” was replaced with the word “percentage”
• Line 4 the word “attacks” was deleted; the word “first” was replaced by “firstly”
• line 5 the word “technique” was replaced with word “techniques”; “situ” replaced by “place”
• line 6 the word “second” was replaced by “secondly”

Unable to decide on acceptance or rejection until the authors have responded to the What next?:
major compulsory revisions
An article of limited interest Level of interest:
Not suitable for publication unless extensively edited Quality of written English:
No Statistical review:
Declaration of competing interests:
I declare I have no competing interests.

Reviewer 2: Matthew J McGirt

Minor Essential Revisions (such as missing labels on figures, or the wrong use of a term, which the author can be trusted to correct)

The authors present their experience with CNS shunt infections. With regard to the design of their study, their definition of shunt infection is too liberal. An elevated white count alone in a pt with a shunt does not constitute a shunt infection. nore does a fever alone, especially in children. I would recomenend that instead of defining shunt infection as "any one of the following signs", I would define it as "any one of the following signs” in addition to a CSF profile suggestive of CSF infection)ie low glucose, gram stain postive,
culture positive etc). I beleive that their observed shunt infection rate of >15% (much higher than published series in the literature) is a result of false classification of shunt infection. This is the only study design flaw.

The value of this paper is as a review ofd shunt infections. It offers no new novel data. I feel that it is publishable with the above mentioned changes, as long as the focus is on the discussion and more focus placed on literature review, perhaps adding a table of previously published organisms etc..


- The table “Table 4. Previously published microbiologic profile of CSF shunt infections” was added.

Accept after minor essential revisions

What next?:
An article of limited interest
Level of interest:
Needs some language corrections before being published
Quality of written English:
No Statistical review:
Declaration of competing interests:
I declare that I have no competing interests

Reviewer 3: Amitabha Mitra

General
The information presented in this paper is a confirmation of already existing knowledge. However, the paper is of significance primarily because of the country of study. The data is sound and methods are appropriate. The discussions and titles are appropriate and well balanced. Though this paper has a small number of cases and little statistical significance can be concluded, the paper merits publication pending the below revisions.

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Major Compulsory Revisions (that the author must respond to before a decision on publication can be reached)
Compulsory revisions include:
1) Information on the use of preoperative prophylactic antibiotics.

- line 16,17 A sentence “Only one dose prophylactic antibiotic (cefuroxime or ampicillin) was given perioperatively to the patients.” was added at the end of the Methods.

2) A better table with patient age, interval between surgery and development of infection and final outcome.

- The table “Table 2: Clinical data of the patients” was added.

3) It would also be beneficial to have a clear understanding between post diversion denovo infection and nosocomial infection as it seems that at least 7 patients are from nosocomial infection (which is preventable). We described all the patients as nosocomial infections. Because all of them were in the first year of postoperative period.

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**Minor Essential Revisions (such as missing labels on figures, or the wrong use of a term, which the author can be trusted to correct)**

1) The patient who was operated for intracranial abscess should possibly not be included in this paper.

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**Discretionary Revisions (which the author can choose to ignore)**

1) There are some grammatical and spelling errors needs to be corrected which are minor in nature.

- Done

2) Epidemiology of total 124 patients regarding their age and reasons for shunt operation.

- A sentence “Twenty-six (20.9 %) of these 124 patients were younger than two years old. The median age of adult patients were 46 (7-72).” were added in the beginning of results section.

- The table “Table 1: Etiological profile of CNS shunt infections with hydrocephalus “ was deleted and “Table 1. Etiological profile of CNS shunt placement operations of 124 patients” was inserted.
3) Information about the type of Hospital (pediatric or adult)

4) Information about the expertise of surgeons whether pediatric or adult neurosurgeons.
   - The sentence which was starting from line 1, “The CNS shunt placement operations that were made in neurosurgery clinic between 2000 December and 2004 December were assessed retrospectively” were replaced by the sentence “The clinical notes of 124 consecutive patients having CNS shunt placement operation for various etiology between 2000 December and 2004 December were reviewed of Pamukkale University, Medical School, Department of Neurosurgery. Operations were perform by two neurosurgeon. One of them (B.C.) has an extraexpertise on pediatric neurosurgery.”

5) Any comorbidities or associated illnesses?
   - A sentence “Clinical data of the 22 patients designated at Tablo 2. Some of the children had another site infection (urinary tract infection, bronchitis, etc.) and majority of adult patients with comorbidities had hypertension, diabetes mellitus and another site infection (urinary tract infection, pneumonia ),” were added in line 8-12 on result section.

Accept after minor essential revisions What next?:

An article whose findings are important to those with closely related research Level of interest:

interests

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

No Statistical review:

Declaration of competing interests:

I declare that I have no competing interests.