Neurosyphilis Management in the Post-Procaine Penicillin Era

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BACKGROUND

- Syphilis rates have increased by 52% in men and 111% in women in the US since 2013 (CDC 2016).
- When appropriately screened, an estimated 3.5%-8% of syphilis cases will be diagnosed with neurosyphilis (NS) (Dombrowski 2015).
- NS treatment requires either 10-14 days of intravenous (IV) aqueous penicillin (PCN) G or intramuscular (IM) procaine PCN plus oral probenecid.

METHODS

Design: Retrospective chart review
Sites: PHSHC STD Clinic and Harborview Medical Center STD Clinic, Seattle, WA
Study period: October 1, 2016 to February 15, 2018
- Patients identified with suspected/confirmed NS
- Obtained demographics, prior syphilis histories, diagnostic and treatment details, and outcomes by manual review
- Data compiled using REDCap, a statistic-reporting QI tool, linked to the Univ. of Washington’s Clinical Data Repository

RESULTS

- Successful treatment: resolution of cerebrospinal fluid (CSF) pleocytosis or elevated protein on repeat LP performed no earlier than 8 weeks after treatment initiation, improvement in neurologic symptoms based on patient report or clinician assessment, or appropriate decrease in serum rapid plasma reagin (RPR) or CSF Venereal Disease Research Laboratory (VDRL) test titers at 6-12 months.

NS Management Algorithm

- If hearing changes or vision sx, refer to neurology (n = 15)
- If neurologic sx persist, refer to neurology (n = 12)
- If LP by neurology w/thr 60 (n = 45)
- If no MVD sx, refer to neurology (n = 4)
- If patient changes to 14-day course, refer to neurology (n = 46)

Table 1: Demographic and Socioeconomic Characteristics

<table>
<thead>
<tr>
<th>Setting</th>
<th>No data</th>
<th>Failure</th>
<th>Success</th>
</tr>
</thead>
<tbody>
<tr>
<td>Inpatient</td>
<td>3 (22%)</td>
<td>15 (85%)</td>
<td>2 (3%)</td>
</tr>
<tr>
<td>Outpatient</td>
<td>9 (64%)</td>
<td>23 (60%)</td>
<td>1 (6%)</td>
</tr>
</tbody>
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DISCUSSION/LIMITATIONS

- Treatment failures were due to uncertain diagnosis, equivocal response or suboptimal adherence to therapy.
- With this retrospective review design we are unable to draw conclusions about causation of outcomes.
- Some data were unobtainable within the study period dates or were incomplete from lack of follow-up information.

CONCLUSIONS

Even for vulnerable populations such as those with uncontrolled HIV or who use IV drugs, employing a multidisciplinary, coordinated care approach at both public health and urban, academic medical centers can lead to rapid evaluation and successful outpatient treatment of NS using IV PCN and obviate the need for inpatient admission.

This type of targeted management strategy may expedite care from time of diagnosis to successful prevention of long-term cost benefits and/or mitigating morbidity associated with NS.

ACKNOWLEDGEMENTS

FGP = future prophylaxis
HIV = human immunodeficiency virus
MPH = master of public health
PCN desensitization = expedite arrangements for IV PCN

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1. CDC 2016 STD Surveillance Report