Surviving a Multi drug resistant infection: my/one patients experience

Thomas L. Patterson, PhD,
Distinguished Professor of Psychiatry
University of California, San Diego
The Saga Began In Egypt
No hospital, pancreatitis
Evac’ed to Germany, psudo cyst Acenobactor Boumeni Araqibactor
Uniklinik Antibiogramm

Name: Patterson
Vorname: Thomas Leroy (M)
Geb. Datum: * 18.02.1947

Anforderung:
Mikrobiologische Untersuchung

Befund:

1: *Acinetobacter baumannii (4MRGN)* vereinzelt
*Keine Spezies-spezifischen Grenzwerte vorhanden.

2: Candida albicans reichlich

3: Candida glabrata reichlich
Das Antimykogramm siehe Befund 51569953.

Bemerkung/Bewertung
Die anaeroben Kulturen werden weiterbebrütet. Nur im positiven Falle erhalten Sie einen erneuten Befund.
Telefonische Befunddurchsage erfolgte am 10.12.2015 um 10:03 Uhr
Faxmitteilung erfolgte am 10.12.2015 um 10:17 Uhr
4MRGN: Multiresistentes gramnegatives Stäbchenbacterium mit Resistenz in 4 Antibiotikagruppen (KRINKO-Definition).
Aufgrund der Meldepflicht nach Hessischer Verordnung für besondere Antibiotikaresistenz ist dieser Befund an das Amt für Gesundheit gemeldet worden.

Untersuchungsmaterial: Abnahmeort:
Abszesspunktat transgastrales Punktat

<table>
<thead>
<tr>
<th>Keim</th>
<th>1</th>
<th>MHK</th>
</tr>
</thead>
<tbody>
<tr>
<td>Piperacillin</td>
<td>R</td>
<td></td>
</tr>
<tr>
<td>Cefotaxim</td>
<td>R</td>
<td></td>
</tr>
<tr>
<td>Ceftazidim</td>
<td>R</td>
<td></td>
</tr>
<tr>
<td>Meropenem</td>
<td>R</td>
<td>&gt;=32</td>
</tr>
<tr>
<td>Gentamicin</td>
<td>R</td>
<td></td>
</tr>
<tr>
<td>Tobramycin</td>
<td>R</td>
<td></td>
</tr>
<tr>
<td>Amikacin</td>
<td>R</td>
<td>&gt;=256</td>
</tr>
<tr>
<td>Co-Trimoxazol</td>
<td>R</td>
<td>4</td>
</tr>
<tr>
<td>Fosfomycin i.v.</td>
<td>R</td>
<td></td>
</tr>
<tr>
<td>Levofloxicin</td>
<td>R</td>
<td></td>
</tr>
<tr>
<td>Ciprofloxacin</td>
<td>R</td>
<td></td>
</tr>
<tr>
<td>Minocyclin</td>
<td>S</td>
<td>4</td>
</tr>
<tr>
<td>Rifampicin</td>
<td>*</td>
<td>8</td>
</tr>
<tr>
<td>Colistin</td>
<td>S</td>
<td>1</td>
</tr>
<tr>
<td>Ampicillin/Sulbactam</td>
<td>R</td>
<td>&gt;=256</td>
</tr>
</tbody>
</table>

Erklärung: S = sensibel, I = intermediär, R = resistent

Antimykogramm

<table>
<thead>
<tr>
<th>Keim</th>
<th>3</th>
<th>MHK</th>
</tr>
</thead>
<tbody>
<tr>
<td>Caspofungin</td>
<td>S</td>
<td>0.125</td>
</tr>
</tbody>
</table>

Erklärung: S = sensibel, I = intermediär, R = resistent

Numerische Angaben sind MHK in μg/ml
Emerging therapies for multidrug resistant *Acinetobacter baumannii*

Meritxell García-Quintanilla*, Marina R. Pulido*, Rafael López-Rojas, Jerónimo Pachón, and Michael J. McConnell

Unit of Infectious Disease, Microbiology, and Preventive Medicine, Institute of Biomedicine of Sevilla (IBiS), University Hospital Virgen del Rocio/CSIC/University of Sevilla, 41013, Sevilla, Spain

The global emergence of multidrug resistant *Acinetobacter baumannii* has reduced the number of clinically available antibiotics that retain activity against this pathogen. For this reason, the development of novel prevention and treatment strategies for infections caused by *A. baumannii* is necessary. Several studies have begun to characterize nonantibiotic approaches that utilize novel mechanisms of action to achieve antibacterial activity. Recent advances in phage therapy, iron chelation therapy, antimicrobial peptides, prophylactic vaccination, photodynamic therapy, and nitric oxide (NO)-based therapies have all been shown to have activity against *A. baumannii*. However, before these approaches can be used clinically there are still limitations and remaining questions that must be addressed.

Phage therapy

Bacteriophages, or phages, are viruses that infect, and in some cases lyse, bacterial cells. The potential use of bacteriophages as antibacterial agents was recognized at almost the same time as their discovery nearly a century ago [9]. However, the dawn of the antibiotic era slowed interest in this area in western countries. In the present context of infections caused by multidrug-resistant bacteria for which there are a decreasing number of active antimicrobials, research exploring the use of phage therapy as an alternative treatment has been renewed in 2010.
Phage Hunt

Dr. Ry Young
Texas A&M- Center for
Phage Technology

Lt. Commander Hamilton Theron
U.S. Navy
Tom’s A.baumannii isolate being attacked by Navy phages

Courtesy of Dr. Robert Pope,
National Biodefense Analysis & Countermeasures Center,
Dept of Homeland Security
Her Husband Was Dying from a Superbug. She Turned to Sewer Viruses Collected by the Navy.

Scientists have long dismissed "phage therapy" as a fringe idea pushed by eccentrics who enjoy fishing in sewage. But now the Navy is betting on it.

Could gargling a virus that eats bacteria solve the superbug crisis? As overused antibiotics become less and less effective, a tantalising discovery may revolutionise healthcare.

- Stefanie Strathdee feared the worst when husband Tom Patterson comatose.
- Husband of 13 years lay in a deep coma, the victim of an aggressive superbug.
- His heart, lungs, and major organs were all shutting down with little hope left.
- Apparently miraculous recovery is result of natural phenomenon that could combat growth of antibiotic-resistant infections and also treat sore throats.

Phage therapy: revival of the bygone antimicrobial

The idea of using bacteriophages as vectors for antimicrobial therapy has existed for decades, but development towards clinical application still lags behind. Geoff Watts reports.
<table>
<thead>
<tr>
<th>Patient #</th>
<th>Age</th>
<th>Underlying Condition</th>
<th>Organism</th>
<th>Outcome</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 (Tom Patterson)</td>
<td>67</td>
<td>Disseminated infection</td>
<td>A. baumannii</td>
<td>Success</td>
</tr>
<tr>
<td>2</td>
<td>67</td>
<td>Bilateral Lung Transplant</td>
<td>P. aeruginosa</td>
<td>Success</td>
</tr>
<tr>
<td>3</td>
<td>74</td>
<td>Open Head Trauma</td>
<td>A. baumannii</td>
<td>Inadequate trial</td>
</tr>
<tr>
<td>4</td>
<td>23</td>
<td>CF; Pre Lung Transplant</td>
<td>P. aeruginosa</td>
<td>Lung Tx List</td>
</tr>
<tr>
<td>5</td>
<td>65</td>
<td>Infected LVAD</td>
<td>P. Aeruginosa +</td>
<td>Success</td>
</tr>
<tr>
<td>6</td>
<td>~63</td>
<td>Infected LVAD</td>
<td>S. aureus</td>
<td>Success</td>
</tr>
<tr>
<td>7</td>
<td>61</td>
<td>Prosthetic Joint Infection</td>
<td>S. aureus</td>
<td>Inadequate trial</td>
</tr>
</tbody>
</table>
A case report on the successful use of a genetically modified phage cocktail to treat a human MDR infection will be published within the next few weeks. This is also the first human case of a Mycobacterium infection to be treated with phage therapy, that holds hope that phage therapy could be used to treat TB. The patient was treated by IV in the UK; the people and process involved was a direct result of Tom Patterson’s case.
U.S. center will fight infections with viruses
Proving ground for phage therapy will organize full clinical trials of the approach
IPATH Center for Innovative Phage Applications and Therapy, The CF trial is being funded by NIAID in partnership with WRAIR.
Engineered bacteriophages for treatment of a patient with a disseminated drug-resistant *Mycobacterium abscessus*

Rebekah M. Dedrick¹,⁺⁴, Carlos A. Guerrero-Bustamante¹,⁺⁴, Rebecca A. Garlena¹, Daniel A. Russell¹, Katrina Ford², Kathryn Harris², Kimberly C. Gilmour², James Soothill², Deborah Jacobs-Sera¹, Robert T. Schooley³, Graham F. Hatfull⁺¹* and Helen Spencer⁺²*
Patient Perspective

• Nine months in hospital, 7 cases of septic shock
  – Hallucinations/delusions
    • Origin: Toxins, Sleep deprivation, ICU psychosis
  – While in a coma: I could hear you
    • Lesson: be careful what you say around patient
    • Cognitive deficits avoided via mental stimulation

• Stigma
  – ICU infection precautions
    • I was a pariah
  – Phage therapy = virus

• I was privileged: national and international effort
• I represent evidence based hope for Phage therapy
THANK YOU

ThePerfectPredator.com