Antibiotics use towards the end of life

Jack Fairweather
Scottish Clinical Leadership Fellow
Renal and GIM Registrar

@JAAFairweather
jackfairweather@nhs.net
Antibiotics use towards the end of life

Infection in the dying is common

Significant uncertainty regarding the role of antibiotics and impression of wide variation in practice, with probable excess of non-beneficial treatments

• SAPG Good practice recommendations for antimicrobial use in frail elderly people April 2018
• SAPG Education meeting - Palliative Care discussion November 2018
• SAPG working group March 2019
Literature review

• Review studies where antibiotic use in end-of-life populations has been examined

• Broad outline of background
• Identify common themes
• Consider research gaps
Literature review

Database search

- 201 article abstracts reviewed
  - 67 papers reviewed
    - 134 excluded: too specific (e.g. single condition); not adults; full paper not available

- 8 Opinion Papers
- 8 Reviews
- 50 Original Articles
- 1 Other

- Abx use surveys
  - 13 prospective
- 21 retrospective

- 10 attitudes studies
- 6 interventions studies
Antibiotics use towards the end of life – themes / issues

• Definition
• Populations / diagnoses
• Setting
• Prevalence antibiotic use
• Goals of therapy / benefits
  • Survival
  • Symptom control
• Infection being treated
• Adverse effects
• Attitudes – patients, families, clinicians
• Interventions / Tools
• Recommendations
Definition and populations / diagnoses

- Definition “towards end-of-life” variable
- Final admission, duration before death examined retrospectively
Antibiotics use

• Wide variation in use reported
  • Heterogeneity in research method
  • Significant population differences

• 4 – 90 % (median 52%) of study populations received Abx (n=23)
• 72 – 98 % (median 87.5%) of “infections” treated with Abx (n=8)
Goals of therapy – survival

• Significant variation in reported outcomes, for both prospective and retrospective studies

• Comparison between “no antibiotics” and “antibiotics” groups difficult

• 12 studies presented survival outcomes
  • 7 reported improved survival with Abx
  • 5 reported no difference in survival with/without Abx

• No survival benefit of IV over oral Abx

• Early responders more likely to survive
Goals of therapy – symptom improvement

• Heterogeneity in study method and reporting
  • Usually retrospective case note review
  • Few prospective objective symptom scoring
  • Varying definitions of symptoms and inclusion of “discomfort”
  • Usually uncontrolled

• 6 studies reported symptoms outcomes
• Reported symptom improvement in 15 – 54 % cases
• Little comparison with non-end-of-life antibiotic-treated population
• Conflicting data re levels of discomfort
Site of infection and response

• 10 studies examined site of infection involved
  • Urine and chest most frequent
  • Skin and soft tissue, GIT, ENT and bloodstream all at lower frequencies
  • Not dissimilar to general population

• Pneumonia increasing proportion nearer to end-of-life

• UTI treatment most likely site to result in symptomatic improvement
  (17 – 79% response rate)

• Lowest rate of symptomatic improvement for bloodstream infection
  (0 – 15.7%)
Adverse effects

• Only 2 papers reported antibiotics adverse event information
  • Retrospective case-note review likely to lack sensitivity for side-effect reporting
  • One paper reported 4% adverse event rate, another survey of clinicians identified much higher reported rates – 62% diarrhoea, 47% N&V

• Comments widespread
  • Side-effects; invasive devices; prolongation unpleasant dying process; AMR; cost; investigation burdens; instilling false hope and neglecting palliation; isolation precautions for AMR
Attitudes – patients, families, and clinicians

• General trend towards favouring antibiotics, but significant variation amongst groups
• Clinicians consider antibiotics overused but consider that patients and families want them
Intervention studies

• 10 studies examined tools related decision-making or specific interventions related to antibiotics use towards end of life
• Mixed evidence for advanced care directives
• Palliative Care Phase tool may identify those more likely to benefit
• Subcutaneous antibiotic administration and home hospice antibiotics may improve tolerability of antibiotics
## Recommendations

<table>
<thead>
<tr>
<th>Category</th>
<th>Recommendation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Communication and decision making</td>
<td>Defining goals of therapy important</td>
</tr>
<tr>
<td></td>
<td>Shared decision making</td>
</tr>
<tr>
<td>Infection specifics</td>
<td>Fever / inflam response in cancer not necessarily infection</td>
</tr>
<tr>
<td></td>
<td>Abx therapy based on sensitivities associated with better outcomes, so do use cultures</td>
</tr>
<tr>
<td></td>
<td>UTI treatment more likely to effect symptomatic improvement</td>
</tr>
<tr>
<td>Research and guidelines</td>
<td>Further study necessary, consider RCT</td>
</tr>
<tr>
<td></td>
<td>Guidelines warranted</td>
</tr>
</tbody>
</table>
Recommendations

Antimicrobial Use at the End of Life

- Goals of Care Discussion
  - Prolongation of life
    - Evaluate and treat if there is a non-futile survival benefit
  - Palliation
    - Symptomatic treatment
    - Targeted antimicrobial therapy only when there are symptoms directly attributable to an infection
    - Antimicrobial avoidance
      - Refrain from additional diagnostic testing or antimicrobials

Baghban and Juthani-Mehta Infectious Disease Clinics 2017; 31,639-647 DOI: 10.1016/j.idc.2017.07.00
Summary

• Reasonable literature base although numerous small studies asking similar questions but with significant population and methodological heterogeneity
• Huge variation in attitudes, practice, and outcomes
• Difficult to bring the evidence to the bedside
• Variation and uncertainty compounds difficulty with shared-decision making
Next steps

• Role for guidelines or framework
  • Systematic review
  • Working group

• Relative paucity of literature looking at antibiotics use towards end of life in acute setting
Antibiotics use towards the end of life

Jack Fairweather
Scottish Clinical Leadership Fellow
Renal and GIM Registrar

@JAAFairweather
jackfairweather@nhs.net