National Clinical Guideline Centre

Pneumonia

Diagnosis and management of community- and hospital-acquired pneumonia in adults

Clinical guideline <…>

Appendix P

June 2014

Draft for consultation

Commissioned by the National Institute for Health and Care Excellence

Disclaimer
Healthcare professionals are expected to take NICE clinical guidelines fully into account when exercising their clinical judgement. However, the guidance does not override the responsibility of healthcare professionals to make decisions appropriate to the circumstances of each patient, in consultation with the patient and/or their guardian or carer.

Copyright
National Clinical Guideline Centre, 2014. Confidential.

Funding
National Institute for Health and Clinical Excellence

Contents

1 Introduction 5
2 Severity assessment tools 6
3 Timing of antibiotic therapy 7
4 References 10

1 Introduction

During the guideline development the GDG considered different types of supplementary evidence that may not directly address the corresponding protocols but contributed towards the drafting of recommendations. This is noted in the evidence review where applicable. This supplementary evidence is presented by review question.

2 Severity assessment tools

The following data from the British Thoracic Society adult community- acquired pneumonia audit 2009/10[5,7] were used as supplementary information for the GDG discussion and decision making.

The most update published information included 5240 adult patients with CAP from trusts across England and Wales. The following table pictures the distribution of the sample based on the severity status as assessed by CURB65 tool.

Table 1: Distribution of patients with CAP by CURB65 severity score

	2009/10 BTS CAP Audit (N = 5240)	Notes
Low severity (CURB65 = 0 – 1)	2247	Similar proportions by severity status were reported in the publication by Lim and Woodhead, 2011 (in which results of a smaller sample size of the same audit was reported N = 2668)
Moderate severity (CURB65 = 2)	1480	
High severity (CURB65 ≥ 3)	1514	

3 Timing of antibiotic therapy

The following table summarizes the observational studies that were originally included in the review (as they met the protocol criteria) but timing of antibiotics was not included in the multivariate analysis (due to poor performance in the univariate analysis) but the GDG still considered this part of evidence.

Table 2: Summary of univariate evidence for timing of antibiotic therapy from observational studies that were designed for multivariate analysis (but timing of antibiotics was not part of the model)

Study (design)	Quality assessment					Outcomes					Quality
	Risk of bias	Inconsistency	Indirectness	Imprecision	Other consideration	Study ID	Number of patients	Outcome definition	Timing definition (hours)	Outcome	
All-cause mortality											
3 prospective studies (Bodi 2005, Bruns 2009, Marrie 2005)[1-3], 1 retrospective study (Mortensen 2004)[4]	Very serious risk of bias[(a)]	No serious inconsistency	No serious indirectness	Serious imprecision[(b)]	None	Bodi 2005	529	Mortality in ICU	≤ 4 vs. > 4 h	≤ 4 h: 75/289 (26%); > 4 h: 53/177 (29.9%), p > 0.2	Very low
						Bruns 2009	166	Mortality in first 3 days	≤ 4 vs. > 4 h	Unadjusted OR 0.65 (0.04 to 10.68)	
						Marrie 2005	3043	Mortality, Continuous measure		Mean (SD) hours from presenting to ED to administration of first antibiotics: survivors: 8.4 ± 13.3; mortalities: 9.1 ± 16.4, p = 0.4807	
						Mortensen 2004	420	30-day mortality	≤ 8 vs. > 8 h	Proportion who died 33/364 (9.1%) if antibiotics ≤ 8 h vs. 9/57 (15.8%) if later	
Length of stay (prolonged)											
1 retrospective study (Rosenstein 2000)[6]	Very Serious risk of bias[(c)]	No serious inconsistency	No serious indirectness	Serious imprecision (b)	None	Rosenstein 2000	367	LOS reduction, analysed by linear regression		0.8 day shorter LOS for those with antibiotics ≤ 2 h vs > 2 h group (no SDs given)	Very low

(a) No adjusting for confounders
(b) Wide confidence intervals or only p-value reported
(c) No adjusting for confounders and 367/684 (54%) analysed – many excluded for missing data

4 References

1 Bodi M, Rodríguez A, Solé-Violán J, Gilavert MC, Garnacho J, Blanquer J et al. Antibiotic Prescription for Community-Acquired Pneumonia in the Intensive Care Unit: Impact of Adherence to Infectious Diseases Society of America Guidelines on Survival. Clinical Infectious Diseases. 2005; 41(12):1709-1716

2 Bruns AH, Oosterheert JJ, Hustinx WN, Gaillard CA, Hak E, Hoepelman AI. Time for first antibiotic dose is not predictive for the early clinical failure of moderate-severe community-acquired pneumonia. European Journal of Clinical Microbiology and Infectious Diseases : Official Publication of the European Society of Clinical Microbiology. 2009; 28(8):913-919

3 Marrie TJ, Wu L. Factors influencing in-hospital mortality in community-acquired pneumonia: a prospective study of patients not initially admitted to the ICU. Chest. 2005; 127(4):1260-1270

4 Mortensen EM, Restrepo M, Anzueto A, Pugh J. Effects of guideline-concordant antimicrobial therapy on mortality among patients with community-acquired pneumonia. American Journal of Medicine. 2004; 117(10):726-731

5 Rodrigo C, Mckeever TM, Woodhead M, Lim WS. Single versus combination antibiotic therapy in adults hospitalised with community acquired pneumonia. Thorax. 2012;

6 Rosenstein AH, Hanel JB, Martin C. Timing is everything: impact of emergency department care on hospital length of stay. Journal of Clinical Outcomes Management. 2000; 7(8):31-36

7 Woodhead M, Blasi F, Ewig S, Garau J, Huchon G, Ieven M et al. Guidelines for the management of adult lower respiratory tract infections--full version. Clinical Microbiology and Infection. 2011; 17 Suppl 6:E1-59