



VacZine Analytics

Bringing life to vaccine strategy...

DiseaseINFOPACK

Respiratory syncytial virus (elderly)

June 2008

Abstract

DiseaseINFOPACK: *Respiratory syncytial virus (elderly)*

CAT No: VADIP007, published June 2008

REPORT ABSTRACT:

Respiratory syncytial virus (RSV) is a highly contagious pathogen which causes annual global epidemics in persons of all ages. RSV infections are rarely without symptoms and often associated with coughing, wheezing and low-grade fever. Although RSV is a common pathogen in infants it also causes significant disease burden in adults with a compromised immune or respiratory system such as the elderly or those with chronic obstructive pulmonary disease (COPD).

This **DiseaseINFOPACK** report is an expert review of the current literature with a focus on RSV infection in the elderly. Particular emphasis is placed on current understanding of the immune response in the elderly, a review of current epidemiology, hospitalizations and morbidity/mortality. Key issues and challenges are also included with respect to future management of the disease.

PAGES: 37

Table of contents

Executive summary
Executive summary (cont...)
Authors Note
The Pathogen
The Pathogen - surveillance
Major protective antigens
Clinical Features
Pathogenesis
Host Response
Transmission
Risk Groups
Risk Factors
Adults at Risk of Hospitalization – US
Prevention and Control
Diagnosis
Treatment
Morbidity/Mortality
Morbidity/Mortality (cont)

RSV associated hospital admissions - US
RSV associated hospital admissions – US/Europe
Epidemiology – comments on elderly data
Economic Impact
Opportunities for New Treatments
Key Issues and Challenges
Appendices

Bibliography

1. Walsh EE et al. Severity of respiratory syncytial virus infection is related to virus strain. *J Infect Dis.* 1997 Apr;175(4):814-20.
2. Struck A et al. Respiratory syncytial virus: G gene genotype and disease severity. *Pediatr Infect Dis J.* 2004 Nov;23(11):1000-2.
3. Health Protection Agency. Respiratory Syncytial Virus graphs 2007/08; Influenza Activity Graphs 2007/08. Accessed 30 May, 2008.
4. Walsh EE et al. Is clinical recognition of respiratory syncytial virus infection in hospitalized elderly and high-risk adults possible? *J Infect Dis.* 2007 Apr 1;195(7):1046-51.
5. Freymuth F et al. [Epidemiology and diagnosis of respiratory syncytial virus in adults] *Rev Mal Respir.* 2004 Feb;21(1):35-42.
6. Walsh EE et al. Age related differences in humoral immune response to respiratory syncytial virus infection in adults. *J Med Virol.* 2004 Jun;73(2):295-9
7. Walsh EE et al. Risk factors for severe respiratory syncytial virus infection in elderly adults. *J Infect Dis* 2004; 189:233–8.
8. Piedra PA et al. Correlates of immunity to respiratory syncytial virus (RSV) associated-hospitalization: establishment of minimum protective threshold levels of serum neutralizing antibodies. *Vaccine.* 2003 Jul 28;21(24):3479-82.
9. de Bree GJ, et al. Respiratory syncytial virus-specific CD8+ memory T cell responses in elderly persons. *J Infect Dis.* 2005 May 15;191(10):1710-8.
10. Lee FE et al. The balance between influenza- and RSV-specific CD4 T cells secreting IL-10 or IFN γ in young and healthy-elderly subjects. *Mech Ageing Dev.* 2005 Nov;126(11):1223-9.
11. Black CP. Systematic review of the biology and medical management of respiratory syncytial virus infection. *Respir Care.* 2003 Mar;48(3):209-31.
12. Walsh EE et al. Risk factors for severe respiratory syncytial virus infection in elderly persons. *J Infect Dis.* 2004 Jan 15;189(2):233-8.
13. Mullooly JP et al. Influenza- and RSV-associated hospitalizations among adults. *Vaccine.* 2007 Jan 15;25(5):846-55.
14. Sivier V et al. [Viral respiratory infections as cause of fever in hospitalized aged patients during a winter season] *Rev Med Interne.* 2001 Dec;22(12):1180-7
15. Hutchinson AF. A community-based, time-matched, case-control study of respiratory viruses and exacerbations of COPD *Respir Med.* 2007 Dec;101(12):2472-81.
16. Wilkinson TM et al. Respiratory syncytial virus, airway inflammation, and FEV1 decline in patients with chronic obstructive pulmonary disease. *Am J Respir Crit Care Med.* 2006 Apr 15;173(8):871-6.
17. Falsey AR et al. Detection of respiratory syncytial virus in adults with chronic obstructive pulmonary disease. *Am J Respir Crit Care Med.* 2006 Mar 15;173(6):639-43
18. Manton KG et al. Changes in the prevalence of chronic disability in the United States black and nonblack population above age 65 from 1982 to 1999. *Proc Natl Acad Sci U S A.* 2001 May 22;98(11):6354-9.
19. Pleis JR, Lethbridge-Çejku M. Summary health statistics for U.S. adults: National Health Interview Survey, 2006. National Center for Health Statistics. *Vital Health Stat* 10(235). 2007.
20. Arif AA et al. Prevalence and risk factors of asthma and wheezing among US adults: an analysis of the NHANES III data. *Eur Respir J.* 2003 May;21(5):827-33
21. Walsh EE et al. Reverse transcription polymerase chain reaction (RT-PCR) for diagnosis of respiratory syncytial virus infection in adults: use of a single- tube “hanging droplet” nested PCR. *J Med Virol* 2001; 63:259–63.
22. Thompson WW et al. Mortality associated with influenza and respiratory syncytial virus in the United States. *JAMA.* 2003 Jan 8;289(2):179-86
23. Griffen MR et al. Influenza and respiratory syncytial virus-related morbidity in chronic lung disease. *Arch Intern Med* 2002; 162:1229–36).
24. Falsey AR et al. Respiratory syncytial virus infection in elderly and high-risk adults. *N Engl J Med.* 2005 Apr 28;352(17):1749-59.
25. Kaye M et al Surveillance of respiratory virus infections in adult hospital admissions using rapid methods. *Epidemiol Infect.* 2006 Aug;134(4):792-8.

Bibliography (cont..)

26. DeFrances CJ, Cullen KA, Kozak LJ. National Hospital Discharge Survey: 2005 annual summary with detailed diagnosis and procedure data. National Center for Health Statistics. Vital Health Stat 13(165). 2007., Table 11. Number of discharges from short-stay hospitals, by age and first-listed diagnosis
27. Population Division of the Department of Economic and Social Affairs of the United Nations Secretariat, World Population Prospects: The 2006 Revision and World Urbanization Prospects: The 2005 Revision. Available at <http://esa.un.org/unpp>. Accessed 30 May, 2008.
28. Russo, CA et al. Hospitalizations in the Elderly Population, 2003. Statistical Brief #6. May 2006. Agency for Healthcare Research and Quality.
29. Infectious Disease and Pediatric Vaccines. AstraZeneca Biologics Day 7 December 2007. Available at [ww.astrazeneca.com](http://www.astrazeneca.com). Accessed 02 June 2008
30. Falsey AR Serum antibody decay in adults following natural respiratory syncytial virus infection. J Med Virol. 2006 Nov;78(11):1493-7.



About VacZine Analytics:

VacZine Analytics is a brand new research consultancy based in the United Kingdom. Its aim is to provide high quality-disease and commercial analysis to those working within or in collaboration with the vaccine industry.

- ④ With our product lines:
 - DiseaseINFOPACK
 - OpportunitySCAN
 - MarketVIEW
 - ExpertREACT
 - VaccineSTATS

Our key focus is helping clients to build the case for developing new vaccines.

Disclaimer

All rights reserved

This licensed product (or part thereof) may not be reproduced, stored in a retrieval system or transmitted in any form without the written permission of the publisher VacZine Analytics (a division of Assay Advantage Ltd).

The facts presented within this document, at the time of its production, were believed to be correct and were gathered in good faith from both primary and secondary sources. VacZine Analytics is not always in the position to assure that the facts are guaranteed. VacZine Analytics cannot be held liable for any actions based upon facts or recommendations presented within this document.



VacZine Analytics

Bringing life to vaccine strategy...

www.vacZine-analytics.com

Warren House

Bells Hill

Bishops Stortford

Herts

CM23 2NN

United Kingdom

Tel. +44 (0) 1279 654514

e-mail: info@vacZine-analytics.com