Targeted Immunization strategies: RSV in COPD - Vaccination and Risk Prevention

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Educational background

1990	Specialization in Respiratory Medicine (70/70 Summa Cum Laude), University of Parma
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Professional experience

2001-Present	Professor and Chair, Respiratory Medicine, University of Ferrara, Director, Respiratory Unit, Emergency Department, University Hospital S. Anna
2001-2004	Associate Professor of Respiratory Medicine, University of Ferrara
1990-2001	Assistant Professor of Medicine, Institute of Respiratory Diseases, University of Ferrara
1994-1997	Research Fellow, University Medicine, University of Southampton
1991-1992	Visiting Scientist, Institute of Occupational Medicine, University of Padua

Respiratory syncytial virus (RSV) is a common respiratory virus associated with acute respiratory infections (ARIs) in infants and older adults. RSV-related ARIs significantly affect the relevant clinical outcomes, including hospitalisation and mortality, in older adults. Elderly individuals and those with chronic diseases are at a higher risk of infections with severe outputs because of clinical frailty and deficiencies in immune responses. Several vaccination strategies have been developed over the last decades, including nucleic acid, subunit, chimeric, live-attenuated, particle-based, and recombinant vaccines, with varying results.

RSV-fusion protein F in its pre-fusional conformation (pre-F) has demonstrated a relevant immunogenic target. This has progressively led to the development of vaccines targeting RSV pre-F protein with the recent approval of two subunit vaccines and one nucleic acid-based vaccine.

RSV is among the most common respiratory viruses triggering the exacerbations of COPD. Due to the deficiencies in the immune system connatural to the diseases, COPD patients are not only more susceptible to infections but also at higher risk of poor outcomes following the infective events. COPD patients are 13 times more likely to be hospitalized after an RSV infection compared to non COPD patients. By far, the most frequent expression of these severe events is represented by COPD exacerbations.

Recent data have shown the persistency of the efficacy of some RSV vaccines over 2 or 3 full RSV seasons in the overall elderly population as well as in those with comorbid chronic conditions, including COPD.

Currently, several vaccines are recommended for adults, resulting in crowded schedules. Therefore, co-vaccination is a potential strategy for improving vaccine adherence.