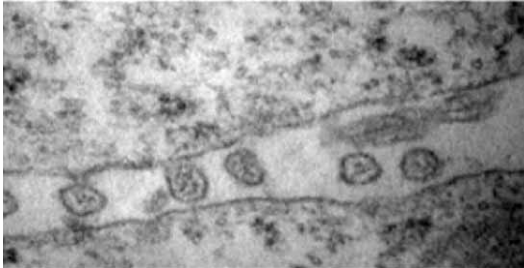


Respiratory Syncytial Virus (RSV)

Respiratory Syncytial Virus (RSV)

RSV is the single most important cause of serious respiratory tract viral disease (bronchiolitis and pneumonia) in infants and young children worldwide.

The virus



Virus particles released from infected mink lung

Pleomorphic particle, 150-300 nm diameter, single stranded RNA virus; belonging to family *Paramyxoviridae*.

Symptoms

Upper respiratory tract symptoms

Nasal congestion and discharge, sore throat, fever, irritability and poor feeding.

Lower respiratory tract symptoms

Cough, difficult and rapid breathing (dyspnea and tachypnea), asthma, intercostal muscle retraction.

Serious cases

severe dyspnea and tachypnea, refusal to feed, respiratory failure.

Diagnosis

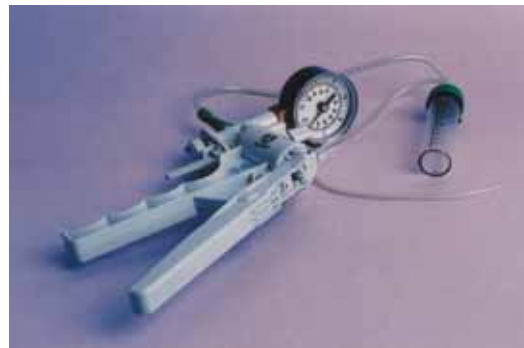
Clinical diagnosis

Presumptive diagnosis can be done on

the basis of clinical syndrome combined with the time of year and other factors.

Laboratory diagnosis

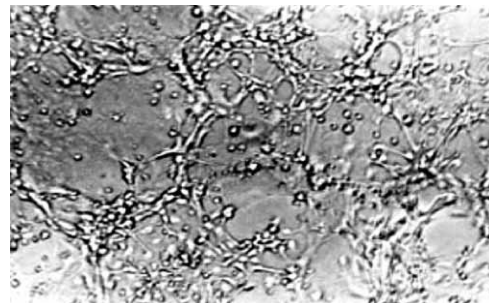
- Antigen detection by ELISA and immunofluorescence (IF) tests on clinical specimens such as nasopharyngeal aspirates, nasal aspirates, throat / nasal swabs.
- Isolation in cell lines; HEp-2, HeLa and BS-C-1.
- Reverse transcription polymerase chain reaction (RT-PCR).



Mucous extractor for specimen collection

Studies conducted in Pune

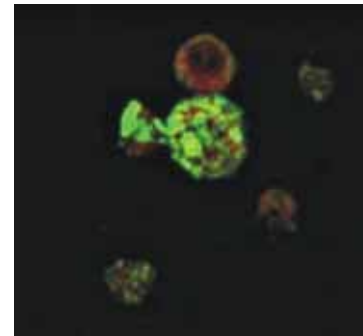
- Specimens collected from pediatric cases with respiratory infections during 1989-90 were tested in ELISA and five percent of the specimens were positive for RSV.



BS-C-1 cells showing CPE due to RSV infection

- During 1991-95 several throat / nasal swab specimens processed in HEp-2, Hela cells, yielded 12 RSV isolates. Seven of these isolates belonged to subgroup A and genotyped as GA2, GA3, GA5 and GA7.
- During 2002 five more isolates were obtained using BS-C-1 cell line.

Twenty-nine MABs were generated against RSV. Three of these are being used for diagnosis by ELISA and IF test

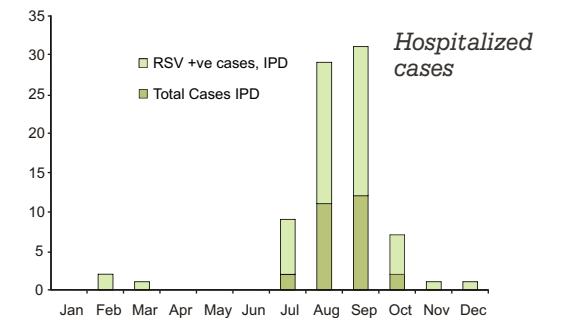
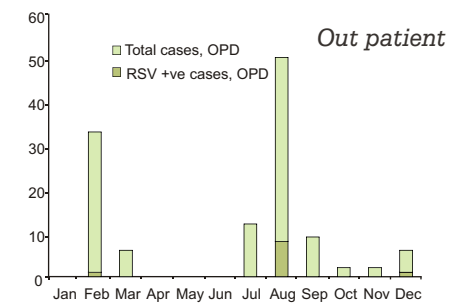


Immunofluorescence in cells from NPA with MAB developed at NIV.

- MABs (4 against N protein and 25 against P protein) were prepared using an Indian strain (955879) of RSV isolated at NIV, Pune.
- ELISA and IFA developed at NIV showed 93.8% and 85% sensitivity, respectively and 100% specificity.
- Tests evaluated employing 111 nasopharyngeal aspirates (NPA) from respiratory cases during 2002.

- In-patient (IPD) and out-patient (OPD) were 50% and 9% positive for RSV respectively.
- Peak RSV activity in monsoon season.

RSV diagnosis by IFA, Pune 2002.



Treatment

- In severe cases, supportive care is very important.
- Mechanical removal of secretions.
- Administration of humidified oxygen.
- In most severe cases, respiratory assistance is needed.
- Use of an antiviral compound Ribavirin aerosol.
- Immune globulin with high titer antibodies to RSV or humanized monoclonal antibody i.e. Palivizumab is beneficial to hospitalized infants.
- Breast-feeding of infants may offer possible mechanism of passive immunization of infants.

Vaccine

Safe and effective vaccine against RSV is not available.