Clinical Management of SARS the Present and Future

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Derivation of Standard Treatment Regimen

- The disease is caused by virus(es)
- Acute respiratory distress syndrome (ARDS) is caused by hyper-reaction of the immune system
- Tri-phasic course – viral replication immune hyperactivity, pulmonary destruction

Standard Treatment Regimen

- General supportive therapy
- Wide-spectrum antibiotics
- Anti-viral agent (ribavirin)
- Immuno-modulating agent - corticosteroid

Ribavirin for SARS

- Empirically as an anti-viral and immune modulating agent
- Dangerous to prescribe steroid without a concomitant antiviral agent
- Broad-spectrum antiviral activities against many respiratory, hepatitic and haemorrhagic fever viruses

Ribavirin for CoV

- Effective in treating fulminant coronavirus hepatitis in mice.
- Although weak inhibitory activity against mouse hepatitis coronavirus, it decreases the release of pro-inflammatory cytokines from macrophages.

Ribavirin Effect

- Although poor in-vitro anti-viral activity, initial clinical response satisfactory, mortality less than 5% in PWH cohort.
- Hong Kong dose less than half of that adopted in Canada, with less side-effects.
- Clinicians supported its use (CU teleconference, discussion on web).

Use of Steroid

- Immuno-modulating effect
- Initial hydrocortisone good response
- Methylprednisolone (MP) (1mg/kg/day) in desperate cases because
  - anti-inflammatory effect
  - PYNEH experience
- High dose steroid with non-invasive ventilatory support for seriously ill patients corroborated at the Hong Kong Thoracic Society Annual Scientific Meeting on March 16, 2003.

Promulgation Strategies – Clinicians Involvement

- Evidence appraisal
- Protocol development
- eKG, eKG' s email alert, SARS Forum, Scientific Symposia
- Data collection & analysis
- Publications

Alternative Treatment Principles

- Do no harm
- Theoretically sound
- Experimentally supported
- Demonstrable clinical effect in other diseases
- Manageable costs

  (suggestions received = 74)

Research Protocols Developed

- Convalescent patient plasma
- TCM
- Pentaglobin
- Thalidomide
- Anti-TNFa
- [Ribavirin + Kaletra] vs [placebo]

Evolution of HA SARS Knowledge Management

Phases	Evolution
Early	Case definition, infection control, empirical treatment of CAP (Expert Panel)
Peak	Virus identified (Expert Panel)
Plateau	(Advisory subgroups) on specific areas
Resolution	Report on interim treatment outcomes (Treatment Advisory subgroups)
Normalizing	HA SARS Collaborative Group
Post-SARS	HA SARS R&D Roundtable

SARS Clinical Management Workshop co-organised by HWFB & WHO 13-14 Jun 03 Presentations from HK

Diagnosis

- Atypical presentations
- Diagnostic index
- Radiological indicators

Hospital Infection Control

- Infection of healthcare workers
- Nosocomial infection
- High risk procedures
- Viral factors in infection control

SARS Clinical Management Workshop co-organised by HWFB & WHO 13-14 Jun 03 Presentations from HK (Con' t)

Special patient groups

- Pregnancy
- Paediatrics
- Geriatrics
- Intensive Care

Specific treatment

- Antiviral therapy
- Immunomodulating agents

Way Ahead

Case-control Studies in Progress

- Ribavarin & Kaletra
- Steroid
- Non-invasive Ventilation: biPAP
- Pentaglobin
- Convalescent Patient Plasma
- Chinese Medicine

Other Clinical Studies

- Diagnostic index
- Atypical presentations
- Scoring system for radiological findings
- Intensive Care Unit common database
- Residual lung fibrosis
- Pulmonary and psychological rehabilitation

Clinical Protocols for Future Outbreak

- Post-exposure prophylaxis using hyperimmune globulin
- Trials of anti-viral agents
- Trials of immuno-modulating agents
- Prevention and treatment of pulmonary fibrosis
- Common data set for postmortems

Alert & Response

Surveillance

- reporting at Old Age Homes & General Outpatient Clinics → activation of alert system

Notification

- notification to the Department of Health →contact tracing

Service data analysis for management and planning

- timely analysis and projection → service planning and activation of contingency plan

Epidemiological data analysis

- real-time analysis → monitoring of effectiveness of public health measures

Infectious Disease Information System

- integrate all stakeholders → timely activation of the alert system via efficient notification by clinicians and automatic flow of information from laboratories
- associate clinical notifications and tests → create an infectious diseases event
- facilitate management of infectious disease outbreaks
- facilitate state of the art reporting and tracking on infectious disease

Transmission Dynamics

- Host genetics as a factor of transmission and infection
- Length of infective period
- Factors leading to " super spreading" events
- Reproductive rate of SARS-Coronavirus and correlation with public health measures

Virology and Immunology

- Evaluation of early diagnostic tests
- Correlation of viral data with clinical manifestations and infectivity
- Longitudinal data on development of immune responses through a spectrum of disease with different severity

Infection Control Practices

- Role of fomite as vehicle for transmission
- Analysis of nosocomial infection and its relationship with various infection control measures
- Evaluation of new models of care processes with a view to developing more cost-effective nursing procedures

Facilities & Equipment

- Different personal protective equipment under different risk conditions
- New design in isolation wards, airflow and sterilisation
- Enhanced/ new equipment using simulation models as well as virological tests where indicated

Health Care Management

- Logistic management
- Crisis management and media management
- Analysis of social, psychological and economic impact to the society and cost-effectiveness of public health measures

HA SARS R&D Roundtable

Epidemiology	2 Aug 03
Infection control & nursing model	23 Aug 03
Personal protective equipment	27 Sep 03 am
Facilities & equipment	27 Sep 03 pm
Use of Chinese Medicine	
Prophylaxis and treatment	

Service Preparedness

- Facilities for better management
- Measures to reduce nosocomial infection
- Disease outbreak identification
- Early detection & diagnosis
- Interdisciplinary cooperation
- Enhancement of intensive care