

Severe Acute Respiratory Syndrome (SARS): An interim information paper for dental health care workers

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Severe acute respiratory syndrome (SARS) is a respiratory illness that originated from the Guangdong province in Southern China possibly in the fall of 2002. A chest physician working in Guangdong province initiated a worldwide spread of SARS through infection of multiple, resident guests at the Hong Kong hotel where he stayed for a few days prior to succumbing to the disease. These guests, acting as virtual vectors of the disease, initiated outbreaks in Canada, Vietnam and Singapore when they returned home after their trip to Hong Kong. The rest of the disease transmission is now well-documented history. At the time of writing (31 May 2003) the disease has been recognised in more than 30 countries worldwide with a total of 8,360 people infected and 764 deaths.

An alarming attribute of SARS is the disproportionate numbers of health care workers that have been affected by the disease, as in some countries up to one quarter of those infected belong to this group. Fortunately however, up until now, not a single dental care worker has been documented to have contracted the disease through a dental clinic/office setting. The aim of this

information paper is to provide basic data on the disease and its transmission, and draw attention to infection control measures that need to be reviewed in the context of a dental surgery setting.

What is SARS?

The viral aetiology

It is now confirmed that a new strain of a virus belonging to the family *Coronaviridae* is the prime agent of the disease. Historically coronaviruses are known to cause common cold and upper respiratory tract infections that may sometimes lead to pneumonia in humans.

Clinical features

The incubation period of SARS is 2–7 days but occasionally 10 days. The illness appears to have two phases the early, prodromal febrile phase and secondary lower respiratory phase. The disease generally begins with a prodrome of usually high fever 100.4°F [$>38.0^{\circ}\text{C}$] that may be accompanied by chills and rigors. Headache, malaise, and myalgia are also common. At the onset of illness, some cases have mild respiratory symptoms. In a

few the febrile prodrome may be accompanied by diarrhoea although rash and neurological or gastrointestinal findings are absent. After 3–7 days, the second lower respiratory phase ensues with a dry, non-productive cough or dyspnoea that may be accompanied by, or progress to, hypoxaemia. In up to one fifth of the cases, the respiratory illness is severe enough to require mechanical ventilation. The case fatality among persons with probable and suspected cases of SARS is around 3–10 per cent although higher fatality rates seem probable as the true extent of the disease unfolds. Further, the mortality is higher amongst those with underlying chronic illnesses and the very elderly.

Mode of spread

The primary means of SARS spread appears to be close person-to-person contact. Most cases of SARS have involved people who cared for, or lived with, someone with SARS or who had direct contact with infectious material (e.g. respiratory secretions) from a person with SARS. Other potential ways in which SARS can spread include touching objects that are contami-

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nated with infectious droplets and then touching the eye(s), nose, or mouth. Hence the importance of good personal hygiene and surface decontamination or disinfection. Airborne spread of the disease has not been ruled out.

Infection control measures in dentistry

Patient evaluation

Especially in the regions where the SARS outbreak is not yet under control, the questionnaire used for eliciting the routine medical history of patients may have to be modified. It would be prudent to incorporate an additional question on whether the patient has, within the last 10 days (i.e. the incubation period of SARS) returned from a country or region where SARS transmission is currently occurring. In the event, elective dental treatment could be deferred until this period is over and emergency treatment, if necessary, provided with routine barrier precautions, avoiding spatter or aerosol generating procedures. Two further questions that may be pertinent are i) Do you have fever? and, ii) Do you have a recent onset of a respiratory problem like a cough or have difficulty breathing?

Protective precautions

Gowns

All clinical personnel must wear appropriate gowns or overgarments and these should be worn only within the clinic premises; the garment should be routinely

changed and, *always* when visibly contaminated by saliva or blood.

Masks

All staff should wear good quality surgical masks within the clinic premises. Ensure that the mask is well adapted so that the nose and the mouth are completely covered. Masks should be discarded in an appropriate receptacle and when moist, due to the attendant loss of their filtration and barrier efficacy.

Be always cognizant that the airborne spatter (containing microbes) are trapped on the superficial surface of the mask and hence avoid touching this surface when the mask is discarded.

Hand washing

Wash hands with liquid soap before and after patient contact, and prior to and after removing gloves using a good technique. This is one of the most crucial infection control measures that needs over emphasis.

Gloves

Gloves should be worn as usual when treating all patients, with change of gloves between patients combined with hand washing.

Eye shields

Eye shields must be worn especially during aerosol / splash / spatter generating procedures.

Rubber dam

Use rubber dam as far as possible

to minimise aerosols and spatter.

Mouthwash

A chlorhexidine gluconate (0.1–0.2%) mouthwash prior to initiating treatment reduces the microbial load of the aerosols created especially during spatter generating procedures.

Avoidance of spatter

In general, limit the use of high-speed instrumentation (that creates aerosols) if efficient aspiration is unavailable; note that ultrasonic scaling must be always accompanied with efficient aspiration. Always maintain good ventilation within the clinic premises by opening windows, if possible.

Surface disinfection

Clean surfaces routinely as recommended with a disinfectant e.g. sodium hypochlorite 1,000ppm (non-metallic surfaces), or glutaraldehyde/alcohol based surface disinfectants.

Important : Like any other rapidly developing area of medicine the foregoing information runs the risk of being out of date and readers are urged to keep in touch with current developments by visiting the Centers for Disease Control and Prevention, USA (<http://www.cdc.gov/ncidod/sars/>) and World Health Organisation (<http://www.who.int/en/>) websites.