

Man-Chun Chiu

Suggested management of immunocompromized kidney patients suffering from SARS

Received: 6 August 2003 / Revised: 21 August 2003 / Accepted: 22 August 2003 / Published online: 24 October 2003
© IPNA 2003

Abstract The treatment of severe acute respiratory syndrome (SARS) is still empirical and controversial. Herein we report our experience in treating approximately 40 SARS children and adolescents. Treatment of SARS kidney patients is limited. Paediatric nephrologists should be on the alert for SARS in order to care for immunocompromised patients. Precautions should be made for both staff and patients with protective measures for infection control.

Keywords SARS · Children · Kidney · Treatment · Mortality

The treatment of severe acute respiratory syndrome (SARS) is still empirical and controversial, and little is known worldwide about the treatment for SARS kidney transplant patients. The incidence of SARS reported in children is relatively low compared with adults. We have the experience of managing approximately 40 SARS children and adolescents and share herein the knowledge that we have gained.

Coronavirus has been identified to be the virus responsible for the SARS epidemic, and by July 2003, the World Health Organization (WHO) reported altogether more than 8400 cases of SARS with an alarming mortality of 812 cases [1]. In Hong Kong, we had altogether 1755 clinical SARS patients of whom 113 were below 18 years of age [2]. In contrast with adults, there were no deaths seen in children and adolescents. It seems children suffered much less from the infection than adults, although some adolescents could have severe lung involvement [3, 4, 5]. In our hospital, among 43 SARS children and adolescents, only 5 required PICU care including 1 adolescent girl who needed intubation; all recovered from the disease with no sequelae [5].

The disease is considered to have a hyperimmune response following the initial phase of virus replication, which can lead to lung destruction [6]. Treatment is still controversial. Ribavirin had been used as an antiviral agent, and steroid had been given in most of our patients to help suppress the hyperimmune response [7, 8]. The regimen used in children is slightly different with lower dosage of steroid given [9]; however, their efficacy had not been proven although anecdotal evidence suggests that corticosteroids may be beneficial. Convalescent serum had been tried in patients with some good results [10].

There was only one adult kidney transplant patient afflicted with SARS. He was over 60 years old and also suffered from diabetes mellitus. He had been transplanted for some years and his clinical condition was not good even before having SARS. He was treated with pulse methylprednisolone, prednisone and ribavirin, without changing his usual immunosuppressant therapy. He died eventually (C.B. Leung, pers. commun.).

Treatment of SARS in kidney transplant is empirical. The usual immunosuppressant regimen might not need to be changed to keep the transplanted kidney from rejection; however, if additional immunosuppressants are to be used for SARS, they will probably need to be given at reduced dosages depending on the duration after kidney transplantation and current immunosuppressants for fear of overwhelming infections. Immunoglobulins may be considered for protection. With immunosuppression, fever might not be a prominent feature, and respiratory symptoms and signs need to be closely watched with frequent X-ray chest monitoring, especially in the second week when deterioration might be expected. Such patients should be isolated and those medical personnel taking care of them must be fully protected, with strict isolation measures enforced.

For SARS, mortality ran high in those with co-morbid illnesses including cardiac, pulmonary, liver diseases, diabetes mellitus and renal failure; and in the advanced age group, mortality could exceed 40% (T.K. Kong, pers. commun.). In Hong Kong, 7 of 19 adult ESRD patients on

M.-C. Chiu (✉)
Department of Paediatrics and Adolescent Medicine,
Princess Margaret Hospital,
Lai King Hill Road, Kowloon, Hong Kong
e-mail: chiumc@ha.org.hk

haemodialysis or peritoneal dialysis infected with SARS died (C.B. Leung et al., pers. commun.). Fortunately, there were no children on dialysis infected. Since SARS children fare much better than the aged, it is likely that those ESRD children might also have a better outcome.

Paediatric nephrologists should be on the alert for SARS, because we have to care for a group of immunocompromised patients including those transplant children. Those children presenting with fever should be isolated and investigated especially at times of a SARS outbreak. Precautions should be made for both staff and patients with protective measures for infection control. If all medical professionals are on the alert, taking vigilant measures against SARS, WHO is optimistic that, should SARS return, it will not do so with a vengeance [11].

References

1. World Health Organization. Cumulative number of reported probable cases of severe acute respiratory syndrome (SARS) www.who.int/csr/sarscountry/2003_07_04/en/
2. Hong Kong e-SARS Registry, Hong Kong Government
3. Hon KLE, Leung CW, Cheng WTF, Chan PKS, Chu WCW, Kwan YW, Li AM, Fong NC, Ng PC, Chiu MC, Li CK, Tam JS, Fok TF (2003) Clinical presentations and outcome of severe acute respiratory syndrome in children. *Lancet* 361:1701–1703
4. Chiu WK, Cheung PCH, Ng KL, Ip PLS, Sugunan VK, Luk DCK, Ma LCK, Chan BHB, Lo KL, Lai WM (2003) Severe acute respiratory syndrome in children: experience in a regional hospital in Hong Kong. *Pediatr Crit Care Med* 4:279–283
5. Chiu MC, Leung CW, Shek CC, Kwan YW (2003) Proc Paediatric SARS. *Hong Kong J Paediatr (new series)* 8:242–253
6. Peiris JSM, Chu CM, Cheng VCC, Hung IFN, Poon LLM, Law KI, Tang BSF, Hon TYW, Chan CS, Chan KH, Ng JSC, Zheng BJ, Ng WL, Lai RWM, Guan Y, Yuen KY, and HKU/UCH SARS Study Group (2003) Clinical progression and viral load in a community outbreak of coronavirus-associated SARS pneumonia: a prospective study. *Lancet* 361:1767–1772
7. HA information on management of SARS. Hong Kong. Hospital Authority; 2003 June 30. <http://www.ha.org.hk/sars/ps/information/treatment.htm>.
8. So LKY, Lau ACW, Yam LYC, Cheng TMT, Poon E, Yung RWH, Yuen KY (2003) Development of a standard treatment protocol for severe acute respiratory syndrome. *Lancet* 361:1615–1617
9. Leung CW, Li CK (2003) PMH/PWH interim guideline on the management of children with SARS. *Hong Kong J Paediatr (new series)* 8:168–169
10. Wong VWS, Dai D, Wu AKL, Sung JJY (2003) Treatment of severe acute respiratory syndrome with convalescent plasma. *Hong Kong Med J* 9:199–201
11. World Health Organization. Update 89-What happens if SARS returns? http://www.who.int/csr/don/2003_06_26/en/