Successful treatment of avian influenza with convalescent plasma

To the Editor—According to the WHO Epidemic and Pandemic Alert and Response (EPR), 19 cases of human infection with avian influenza A/H5N1, including 12 deaths had been confirmed in China by 26 July 2006, giving it a mortality rate of 63%.

We would like to report recovery in a patient with confirmed H5N1 avian influenza and signs of multiple organ failure who was treated with some innovative technologies, including transfusion of autologous convalescent plasma. This male patient had been to a local live poultry market several times before developing symptoms of fever and pneumonia on 3 June 2006. When admitted to hospital 9 days later, he was critically ill with lung and heart failure, renal failure, toxic hepatitis, bleeding from his upper gastrointestinal tract, and disseminated intravascular coagulation. Moreover, his lungs were infected by several drug-resistant bacteria such as *Pseudomonas aeruginosa.* His immune system was clearly weakened.

A woman who had recovered from avian influenza (diagnosed on 11 February) donated her convalescent plasma (group O). Based upon our past experience using plasma collection from a convalescing patient for passive immune therapy during the SARS outbreak in 2003,[1] we used a protocol of MCS+ and 995E/LDPLP to obtain 500 mL plasma. The plasma was divided into five bags and was tested to ensure it was free of infectious agents. The patient received five transfusions of 100 mL convalescent plasma at intervals of between 5 and 10 hours from day 3 of his hospital admission. This, combined with several other medical methods, arrested his clinical decline. Between the 7th and the 16th days of treatment with passive immunotherapy, the virus became undetectable in his serum and specific antibodies to H5N1 appeared. Eventually the patient was taken off the ventilator, was able to eat and was discharged from hospital on 2 August.

During the SARS outbreak several reports indicated that use of passive immune therapy was an effective treatment for acute cases of that disease.[2] However, up to now there have been no reports of the use of convalescent plasma to manage avian influenza. Although we cannot prove that the recovery of this patient was solely due to infusion of convalescent plasma, it was indeed critical. If a combination of two techniques, viral inactivation and plasmapheresis, is used to treat this new communicable disease, a therapeutic chain of transfusion can be established between convalescent patients and newly infected patients if necessary.

LK Kong, MS
(e-mail: klk001@msn.com)
BP Zhou, MD
Institute of Transfusion Medicine, Shenzhen Blood Center
Shenzhen 518035, China

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