CASE REPORT

Use of steroids for management of varicella pneumonia

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SUMMARY

Varicella pneumonia (VP) is a critical complication of varicella infection and still carries significant morbidity and mortality, often requiring intensive care unit admission. Current accepted treatment is with intravenous aciclovir and organ support, if required. We report two cases of VP with acute respiratory failure, successfully treated with intravenous steroids in addition to aciclovir. Further research into the benefits of steroid therapy in VP is warranted.

BACKGROUND

Varicella zoster virus (VZV) causes varicella, which is a common viral infection known to have more serious sequelae in adults than in children. VZV pneumonia is one of the most serious complications of this infection in adults. A recent 10-year, retrospective Spanish study estimated the prevalence to be 1:300 000 population with a severe clinical course requiring 11 of the 46 patients to be admitted to the intensive care unit (ICU). The main complications were acute respiratory failure and acute renal failure.¹ Currently, recommended therapy involves intravenous aciclovir and organ support, if required.² Use of steroids alongside aciclovir has been shown to be beneficial with regard to reducing length of hospital and ICU stays.³ We report two cases of varicella pneumonia (VP) successfully treated with steroids alongside aciclovir. However, the procedure needs further investigation.

CASE PRESENTATION

The first case involved a 69-year-old man with a history of chronic lymphocytic leukaemia and diffuse large B-cell lymphoma (in remission). He was admitted unwell with chest and epigastric pain, and was initially treated for pancreatitis and cholecystitis. On day 9 post admission, he was noted to have a new vesicular rash across his face, neck and torso, which was highly suspicious for varicella, and subsequently confirmed by viral PCR. Intravenous aciclovir was started. He had derangement of liver function test and was diagnosed with varicella hepatitis. He also developed VZV-induced disseminated intravascular coagulopathy with thrombocytopenia. On day 11, he became hypoxic and was found to have widespread chest crepitations. He was diagnosed with VP and type I respiratory failure; he was transferred to the ICU. Treatment with steroids (50 mg hydrocortisone two times per day increased after 24 h to 60 mg four times per day) and intravenous immunoglobulin

(Privigen 27.6 g) was started 2 days after varicella diagnosis. Intravenous steroid treatment was continued for 6 days, and then weaned initially to 60 mg two times per day for 2 days, then to 15 mg prednisolone once daily for 2 days before stopping completely. The patient made a good recovery and did not require invasive respiratory support during his admission. He was discharged from ICU on day 20 and from hospital after a further 6 days, fully recovered.

The second case involved a previously well 55-year-old man admitted with 3 days of left loin pain without dysuria and a vesicular rash on his trunk and back, consistent with varicella, and later confirmed by viral PCR. Treatment with intravenous aciclovir and co-amoxiclav was started on the day of admission. On day 1 post admission, he became febrile (39.5°C) and breathless, desaturating to 92% despite 2 L oxygen. Chest examination revealed wheeze and bilateral crepitations. Chest X-ray showed widespread reticular shadowing consistent with VP (figure 1). On day 2, the patient was admitted to the ICU with worsening type 1 respiratory failure (SpO₂ 90% on 15 L O₂) and exhaustion (respiratory rate 40 breaths/min). He was intubated and ventilated that day (PS 17, PEEP 10, FiO₂ 1.0). He remained critically unwell with acute respiratory distress syndrome (ARDS) secondary to VP and only stabilised on proning and paralysis. On day 2, steroid treatment was added (hydrocortisone 100 mg two times per day for 5 days, then prednisolone 25 mg for 1 day) alongside additional antibiotics (clarithromycin 500 mg two times per day) and aciclovir increased to 800 mg two times per day. Following this, the

Figure 1 Chest X-ray revealing diffuse pulmonary infiltrates consistent with varicella pneumonia.

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patient began to clinically improve. He was extubated on day 7 and discharged from ICU on day 12. He made a good recovery, and was discharged from hospital on day 14.

OUTCOME AND FOLLOW-UP

Both patients have been followed up as outpatients and are doing well.

DISCUSSION

There is sparse evidence in the literature regarding the use of corticosteroids in VP with no large-scale randomised controlled studies. Both our cases had early ARDS due to VP. The effectiveness of corticosteroid therapy in ARDS remains under debate as there is heterogeneity of effects of steroids depending on aetiology of ARDS.⁴ A South African retrospective and prospective uncontrolled study of 15 patients published in *Chest* Journal in 1998, examined the role of corticosteroids in life-threatening VP. The six patients who received corticosteroids in addition to

antivirals and supportive care demonstrated a clinically significant therapeutic response, with significantly shorter hospital and ICU stays, and no mortality despite a lower median PaO₂ within this group on admission to ICU.³ A subsequent review of case reports on the use of steroids with aciclovir in immunocompromised patients (120 cases) published in 2004 suggested that the combination of antiviral with steroid treatment might be associated with a lower mortality than aciclovir alone (0% vs 10.3%).⁵ Our cases were built up on anecdotal data for the use of corticosteroids in early ARDS due to VP, however, the need for further study and investigation in this area is evident. In the meanwhile, the use of steroids in VP remains a clinical decision.

Contributors RCo and RCa wrote the manuscript. MR identified the cases and wrote the learning points.

Competing interests None declared.

Patient consent Obtained.

Provenance and peer review Not commissioned; externally peer reviewed.

Learning points

- Varicella pneumonia is a serious complication of varicella infection in adults.
- Current accepted management is intravenous aciclovir and organ support, if required.
- Intravenous steroid therapy may be a useful adjunct to this treatment and warrants further research.

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