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## Severe acute respiratory infection following glucocorticosteroids treatment of uncomplicated influenza-like illness from pH1N1 influenza infection

Fa Xian Zhan and Xuesen Xing

Hubei Provincial Center for Disease Control and Prevention, China

**Background:** Current most studies on glucocorticosteroids treating influenza only estimated risk of critical illness or death, which were easily confused by early and later glucocorticosteroids treatment. We used sARI as endpoint and investigated risk for receiving glucocorticosteroids before sARI onset.

**Methods:** sARI case was defined as ILI with pH1N1 infection and respiratory distress. Control was pH1N1 case other than sARI, randomly selected from community. We compared glucocorticosteroids and other medications used before sARI onset by matched case control study that was adjusted for age group and underlying disease, and estimated time-dependent risk and dose-response at different time periods in the course of sARI cases.

**Results:** 34% of sARI cases received glucocorticosteroids before sARI onset compared to 3.8% of controls during equivalent days (ORM-H=17,95%CI=2.1-135). Receiving glucocorticosteroids before sARI onset increased risk of developing subsequent critical illness or death (ORM-H=5.7,95%CI=1.6-20.2), and the ORM-H increased from 5.7 to 8.5 while continued receiving them after sARI onset, only receiving glucocorticosteroids after sARI onset did not increase risk of severe illness (ORM-H=1.1,95%CI=0.3-4.6). Each increase in glucocorticosteroids dose of 1 mg/kg/day before sARI onset, the pMEWS at the time of sARI onset increased by 0.62 (R<sup>2</sup>=0.87).

**Conclusions:** Early glucocorticosteroids treatment increased risk of sARI and subsequent critical illness or death, only receiving glucocorticosteroids after sARI onset did not increase risk of severe illness.