



Incidence of acute mountain sickness in young adults at 3200 meters: comparison of the Lake Louise Scoring and Chinese Scoring Systems

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ABSTRACT. The purpose of this study was to compare two scoring systems used for the diagnosis of acute mountain sickness (AMS): the Lake Louise Scoring (AMS-LLS) and the Chinese Scoring Systems (AMS-CSS). In total, 339 healthy young adult volunteers residing at sea level ascended to 3200 m by train and bus over a total journey time of 48 h. All subjects ascended in the same manner and were divided into three groups that were assessed after one (N = 88), two (N = 91), and three (N = 160) nights, respectively, at altitude. The overall incidence of AMS was 17.11% (N = 58) and 29.79% (N = 101) according to the AMS-LLS and AMS-CSS, respectively. Two participants (0.59%) experienced high-altitude pulmonary edema. Both scoring systems showed the highest incidence of AMS after the second night at high altitude. The AMS-CSS and AMS-LLS scores were significantly correlated (Pearson's $r = 0.820$, $P < 0.001$). The AMS-CSS identified all AMS subjects diagnosed by the AMS-LLS, and an additional 43 subjects. The dominant symptoms were reduced exercise tolerance (61.7%), fatigue (49.0%), dizziness (28.9%), chest distress (28.3%),

and headache (27.4%). Compared with the AMS-LLS, the sensitivity, specificity, and positive and negative predictive values of the AMS-CSS were 100, 84.7, 57.43, and 100%, respectively. There was no relationship between oxygen saturation levels and AMS scores at 3200 m. In summary, the AMS-CSS was similar to AMS-LLS, except that it resulted in more positive diagnoses, and headache did not play a large diagnostic role.

Key words: Acute mountain sickness; Acute hypoxia; Pulse oximetry; Tibetan plateau; Headache