15-3 High altitude headache in high-altitude inhabitants: Investigation from the Chinese-Japanese Women’s Mt. Qomolangma Medical Expedition 2005

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Background: High-altitude headache (HAH) is defined by the International Headache Society (IHS) as the headache that occurs within 24 hours after ascending to 2,500 m or above and subsides within 8 hours after descending. The Japanese and Chinese women climbers performed a joint expedition on Mt Qomolangma (Everest 8,844m) in 2005. During the expedition, we investigated whether there was a difference in clinical manifestations of HAH between the native inhabitants of highland (Lhasa) and those of lower heights.

Method: The expedition team consisted of 39 members (26 males and 13 females), in which 26 individuals were Lhasa inhabitants and 13 individuals lived at lower altitude. Vasodilative reaction was assessed by digital volume plethysmography at Lhasa (3,780m), Base Camp (BC, 5,200m) and Attack Base Camp (ABC, 6,500m).

Results: Development of headache was associated with younger age, gender (female) and a history of HAH. As for lower inhabitants, 15.3% experienced headache at Lhasa (3,780m), and the incidence of headache increased up to 46.2% at BC and 61.5% at ABC. In contrast, none of the Lhasa inhabitants developed headache at Lhasa, and only 7.7% presented with headache at BC. However, the incidence of headache increased to 65.4% at ABC, which was as high as that observed in inhabitants of lower heights. We have previously demonstrated that vasodilative reaction at high altitude is primarily mediated through hypoxia, since vasodilation was completely abrogated by administration of oxygen. During the current expedition, vasodilative reaction was also observed in Lhasa inhabitants as they climbed to higher altitude.

Conclusion: Exposure to more pronounced hypoxic/hypobaric conditions was associated with vasodilation of peripheral vascular system and with the development of headache even in individuals of high-land inhabitants. Therefore, it is considered that high-altitude headache is also common in high-altitude inhabitants.

Keywords: High-altitude, Headache