frostbite and were released to descend. On May 15 they were both flown out from the Kahiltna Base. (Source: Peter Fielding, Mountaineering Ranger, Denali National Park)

Analysis

Both seemed to be well-hydrated and well-acclimated, but neither had adequate hand and foot protection: Holmes with very thin gloves and neither with full overboots. (Source: Peter Fielding, Mountaineering Ranger, Denali National Park)

HYPERVENTILATION-INDUCED CEREBELLAR ISCHEMIA (HICI)

Alaska, Mount McKinley

On April 30, 1989, the Penns Woods Expedition flew to the Northeast Fork of the Kahiltna Glacier to ascend the West Buttress route of Mount McKinley. The party arrived at the 4300 meter camp nine days later.

On May 12, during a carry above the 4300 meter camp, while ascending on the fixed-line on the headwall, Joseph Dietrick (32) experienced a sudden episode of symptoms that led the party to suspect high altitude cerebral edema (HACE). Dietrick reported severe dizziness 30 mintues prior to collapse. For two to three minutes, Dietrick experienced extreme ataxia and was unable to stand.

His condition improved with rest, and with assistance, he was able to make it down to the Denali Medical Research Camp in two hours. Dietrick's condition improved with rest through the night, regaining 90% of motor coordination by morning. Doctors Selland and Hackett at the medical camp diagnosed Dietrick's condition as hyperventilation-induced cerebellar ischemia. (Source: James Litch, Mountaineering Ranger, Denali National Park)

Analysis

Dietrick was an extremely fit climber, gained elevation at a reasonable rate, and had not experienced any altitude sickness symptoms prior to the incident.

Hyperventilation-induced cerebellar ischemia (HICI) is thought to be due to an extremely low blood carbon dioxide concentration as a consequence of hyperventilation. The extremely low blood carbon dioxide concentration triggers an acute reduction of blood flow to the cerebellum (the motor coordination center of the brain), conceivably via the hypothalmus of the brain. HICI is extremely rare; however, the condition appears to occur most frequently among extremely well-conditioned individuals such as marathon runners. The high altitude ventilation response when climbing at high elevations may have precipitated the condition in this case. (Source: James Litch, Mountaineering Ranger, Denali National Park)

FALL ON SNOW, CLIMBING ALONE, AMS

Alaska, Mount McKinley

On May 6, 1989, Christopher Bing (30) flew to the Southeast Fork of the Kahiltna Glacier to attempt a solo ascent of the West Buttress route of Mount McKinley. Bing allowed four days to reach 4300 meters and a total of seven days to reach 5200 meters from the Talkeetna Airport. Bing did experience acute mountain sickness (AMS) symptoms after arrival at the 4300 meter camp, but continued climbing after a day of rest.