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Brown Bear Attacks in a Nepalese Scenario: A Brief Review

To the Editor:

Nepal, a landlocked country in Southeast Asia, is known for its biodiversity due to its geographical position, altitudinal, and climatic gradients. Fatal and nonfatal injuries sustained from wild animal attacks are not uncommon in Nepal, but lack of reporting of a specific pattern of injuries sustained and their management have made it appear as a rare phenomenon. Among the wild animals, various species of bear reside in Nepal. Among them are the sloth bear (*Melursus ursinus*), which inhabits Terai, the southern lowland (<1500 m), the Asiatic black bear (*Ursus thibetanus*) that is found in the hilly region in Nepal (up to the tree line, 1500 m to 3500 m), and the brown bear (*Ursus arctos*), which resides in the Trans-Himalayan region (altitude range from 3800 m to 5500 m).¹ Black bears and brown bears, listed as endangered and conserved species, have been depleted as a result of exploitation and deforestation that led to habitat destruction, poaching, and retaliatory killings to minimize human and livestock depredations. As the habitats of humans and wild animals have begun to merge, encounters with wild animals have risen. Bear mauling or bites occur when people enter the wilderness to collect firewood or tend grazing cattle.^{1,2}

Bears are thought to be intelligent mammals that target the upper body to weaken the enemy and prevent retaliation. The majority of victims sustain devastating

facial disfigurement. Bears may attack suddenly when encountered and without provocation, and cause specific patterns of nonfatal injuries readily distinguishable from those of other animal attacks.³ Tearing, cutting, or penetration by claws (Figure 1) and teeth occurs singly or in combination. Teeth and claws are the natural weapons for bears. Long slender canine teeth can penetrate as far as 1.5 cm into the body. Long strong claws can penetrate up to 4 cm.⁴

Two cases of brown bear attacks were registered in 2014 in Manipal Teaching Hospital Pokhara. The hospital is the first tertiary care center for people residing in the Upper Mustang Region, which is located in the Dhaulagiri-Annapurna mountain range in the northwestern part of the country. Permanent facial disfigurement was the feature common to both victims, who were then referred to higher medical centers for plastic reconstruction. Delayed medical attention because of geographical inaccessibility of transportation (Figure 2) may lead to life-threatening complications of the injuries. Because these areas typically do not have a trauma center, victims must endure time-consuming transportation to receive help.

The government of Nepal provides compensation and relief funds in cases of injury or death of humans or livestock caused by wild animals. According to the Wildlife Damage Relief Guideline 2069 (2012–13), immediate relief is provided in the amount of 10,000 Nepalese rupees for human injuries and 50,000 to 300,000 Nepalese rupees for human death.² False reporting of bear attacks for compensation remains a possibility, and therefore needs to be ruled out based on detailed medicolegal investigations. Case reporting should be encouraged to provide photographic evidence of the injuries. Detailed investigation into the circumstances may prevent wrongful recordings and prevent compensation from reaching the wrong hands.

Figure 1. Specimen of a brown bear claw recovered from the Upper Mustang Region.

Figure 2. Landscape of Upper Mustang Region, which is the habitat of the brown bear (*Ursus arctos*).

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In Response to Ultraendurance Athletes With Type 1 Diabetes: Leadville 100 Experience, by Khodae et al

To the Editor:

The letter by Khodae et al¹ nicely describes the performance of 19 athletes with type 1 diabetes (DM1) out of 7215 total athletes competing in the 2011–2013 Leadville 100, a 161-km mountain bike race and 161-km ultramarathon run. There was no statistical difference

between the 68.4% completion rate of the DM1 athletes and the other endurance athletes. However, concern was expressed in this letter about awareness of, or adherence to, diabetes management guidelines.

Education for DM1 patients on multiple daily injections or pumps usually (or should) include exercise instructions for reduced insulin basal needs, carbohydrate boluses, and correction boluses as well as increased use of glucose monitoring, target ranges of glucose to avoid hypoglycemia, and calorie intake. All of this is labor-intensive. Insulin adjustments are highly individualized and involve some trial and error, but are helped especially by the ever-increasing sophistication of insulin pumps, pump trainer/educators, and pump users. Guidelines by the American Diabetes Association² are expectedly generalized. More specifics are available, for example, from other sources about endurance athletes with DM1.³

In the arduous Leadville 100, perhaps the patient-provider (s) relationship, the Internet, social media, and personal experience offered detailed advice for individual insulin management. Or perhaps information was available from Team Novo Nordisk, a global all-diabetes sports team of cyclists, triathletes, and runners, spearheaded by the world's first all-diabetes professional cycling team and sponsored by the Danish insulin manufacturer Novo Nordisk.⁴

I agree with the authors that further studies are needed, but they are hard to come by in such a setting. Until that day arrives, are there any practical tips that can be gleaned from their review? For example, was there any prerace diabetes planning vs actual implementation to change doses of insulin before, during, and after the event when hypoglycemia can still strike? As most were probably pump users, were pump basal infusions reduced and by how much, or temporarily suspended? Were carb boluses cut, say, in half? Were square-wave profiles used rather than simple boluses? Were insertion site set failures common? Were continuous glucose-monitoring systems that measure interstitial glucose levels accurate or useful in this dynamic setting? This was a retrospective study with limitations, and such information may not be available from the entire group, but even individual or anecdotal information would be helpful for both providers and athletes with DM1. Thank you.

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