

RESEARCHER FROM SRI LANKA AT THE YOUNG PHYSICIAN LEADERS 2016 PROGRAM IN BERLIN

Quick test for snake venom

Using antivenom to treat snakebites is a balancing act: if a patient doesn't have venom in his blood after all, the side effects of the antivenom can cause severe damage. But if a bite is left untreated for too long, the antivenom may no longer be of any help. Dr. Kalana Maduwage of the University of Peradeniya in Sri Lanka has developed a simple and quick test for the early detection of snake venom in a patient's bloodstream. This innovation propelled him to the finals of the Aspirin Social Innovation Award 2016.

Kalana Maduwage is a man of many talents: pharmacologist, physician, inventor, natural scientist – and snake charmer. The Sri Lankan researcher has set off into the wilderness many times himself to catch snakes and milk venom from their fangs. "I've been bitten three times, but fortunately none of the bites were dangerous," he says.

But not everyone whose system has been exposed to a snake's toxic secretions gets off so easily. According to estimates, snake bites cause up to 100,000 fatalities a year worldwide. Antivenom often has severe side effects. It can, for instance, trigger extreme allergic reactions. "Antivenom therefore should only be administered to people who really need it," explains Maduwage. Even the most dangerous snakes do not necessarily inject venom with every bite. It is difficult to determine at first how serious a patient's condition is, because in many cases several hours can go by before the onset of symptoms. "But we can't wait that long," the researcher explains. "Because once the venom starts destroying nerve cells, an antivenom can no longer reverse the damage."

While working towards his PhD at the University of Newcastle in Australia, Maduwage hit on the idea of studying an enzyme in the blood called phospholipase A2, which occurs in virtually all snake venom. He established that it displays elevated activity after a dangerous bite. In 2014, he published a paper on his findings in the journal *Scientific Reports*. Based on this discovery, he developed a quick test, similar to a pregnancy test.

In October 2016, the junior physician participated in the Young Physician Leaders 2016 program in Berlin, a three-day meeting of some 25 junior leaders in the health sector from all over the world. "The participants subsequently attend the World Health Summit, held annually in Berlin," reports Professor Detlev Ganten, President of the World Health Summit. This international medical conference, funded by Bayer, brings together representatives of business, politics and society with physicians



Researcher in the wild: Kalana Maduwage knows how dangerous snake bites – like that of the cobra – can be. The doctor has been bitten three times himself, albeit by less poisonous species.

and researchers to discuss the world's most urgent medical problems. For Kalana Maduwage, getting in contact with Bayer was the most important result of his visit to Berlin. "I was encouraged to apply for the Aspirin Social Innovation Award," he reports. Maduwage hopes that his participation in the finals will result in new opportunities for collaboration, so that his quick test for snake venom can soon start helping to save lives. ■

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