‘Tis the Season of dengue, chikungunya

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This guest post by Aditya Mittal, a Professor at the Kusuma School of Biological Sciences, Indian Institute of Technology Delhi, is a heart touching story of a little boy who has had multiple trysts with seasonal viral outbreaks – dark blobs in India’s annual health calendar this time of the year. He also tries to dissect the queer and unexplained ‘nasty viral’ fever, seeking to track its probable links with the onset of diabetes.

Through this post, Mittal tries to examine the larger medico-scientific canvas and asks what India needs to do urgently to dodge the dengue-chikungunya trap that seems to be increasing in virulence every passing year.

‘Tis the season
Of viral fevers, chikungunya, dengue, brain fevers, even diabetes?

While the Western world associates “‘Tis the season” with Christmas festivities, in India “‘tis the season” of viral outbreaks. Come September, and front pages of Indian newspapers are filled with articles on various outbreaks. Capital Delhi, in particular, has a rough tryst with the post-monsoon bugs, which unleash substantial morbidity and an annually-increasing mortality.

In this post, I will give a first-hand account of an unusual case study that might hold clues to a variety of medico-socio-scientific parameters in India.

A boy called Sid

Since the age of 4, Siddhant (fondly called Sid) has been hiking the Himalayas. Before his fifth birthday, he was doing 7 km-hikes at an altitude of above 7500 feet. Now 10, he has done 15 km-hikes at altitudes well over 10,000 feet. Sid has gradually built his technique and stamina to explore raw Nature in places almost devoid of human population. He loves the idea of bonding with his parents, his co-hikers, during the physically demanding hikes. Sid’s parents and family regale in the many interesting conversations the small boy triggers as he passes resolutely through remote villagers along the hiking routes. Sid is also a tennis player with top finishes in under-6, under-8 and under-10 tournaments. He loves playing the drums and is also great at academics, always among the top in his class. In short, the ideal child with proud parents.

The outbreaks

In August 2015, Sid had an encounter with the Aedes mosquito. For the first time, the boy who received special awards for full attendance in school was down with dengue fever. The fighter that he is, Sid recovered fully in a couple of weeks. Life came back to normal within a month. In June 2016, the boy was back enjoying his ‘Maggi’ noodles, a staple of Himalayan hikers, at Khardung La, the highest motorable pass in the world.

Once back in Delhi, his parents braced themselves for the mosquitoes, stocking up on repellants to create a mosquito-free fortress at home and an invisible repellant-cream armor when outdoors.
Mid-August 2016, Sid started feeling weak and was soon down with a fever of 103°F. After three days of high fever accompanied by vomiting, dehydration, body rashes and joint aches, he was unable to stand up and walk properly. Antigen tests for dengue and chikungunya were negative and platelet counts were never below danger levels. It appeared to be a case of a ‘nasty viral’ fever. Sid missed an important school ceremony in which he was to be decorated. Dejected, he patiently kept taking fluids as advised, itching to get better as soon as possible. The fever was gone in a few days. Sid rejoiced but weakness and joint pains seemed to persist. The ‘nasty viral’ was not going away easily.

After more than a week, Sid decided to go to school on his birthday August 29 (which he shares with Michael Jackson, whose music he appreciates with his parents’). After school, he wanted a private celebration with his parents – a boy turning 10 showed the wisdom of a sage in wanting only a pizza party with his family rather than a lavish celebration with other kids. The family enjoyed their time together, laughing away the ‘nasty viral’ lurking in mild joint pains.

**The bitter shock**

In the first week of September 2016, Sid complained of some pain in the lower abdomen and right pelvic joint. A lingering symptom of the slowly-departing viral attack that had made him lose about 7 Kg weight? He was advised an ultrasound and a routine urine test to check for appendicitis.

The ultrasound was fine. The urine test showed high sugar. It was repeated. Sid had started feeling very thirsty. Two more tests later, Sid’s urine was showing very high sugar. It was time for blood tests – again, almost everything normal but sugar was dangerously high (400-600 mg/dL), more than 4-6 times of what it should be. More blood tests with same results.

September 10, 2016. Sid gave his blood sample for a haemoglobin A1C (HbA1C) test to detect diabetes – the results showed a high of 7.8. His morning urine sample had ketones. The television was playing the news of America bracing to deal with the memories of 9-11. The twin towers of Sid’s life, his parents, felt the ground slipping under their feet. Sid was admitted to a hospital and immediately started on insulin therapy. Fortunately, ketoacidosis had not started in his system indicated by a venous blood gas test. Two days later, ketones had stopped appearing in his urine and he was discharged from the hospital with a basal-bolus regimen of insulin injections to be followed. The diagnosis on his discharge summary: “Type 1 Diabetes mellitus”.

**India’s Olympics performance: much ado about nothing?**

As 10-year-old Sid learns to prick himself multiple times a day to test his blood sugar and inject the right dose of insulin, his parents are trying to come to terms with what has happened. There is no history of diabetes in the family, even the extended family. Somehow, the ‘nasty viral’ knocked out his pancreas (appearing healthy in the ultrasound). That really is as startling as it is scientifically rare. Or is it really rare? India is often referred to as the diabetes capital of the world.

Recently, there was this big brouhaha over how a country of more than a billion has so few Olympics medal winners. While some research is focusing on investigating genetic dispositions of Indians towards diabetic tendencies, India’s population has been exposed to a series of nasty seasonal viral infections for decades, if not centuries. Sid’s diagnosis was aided by an accidental sugar measurement in his urine. It needs pondering on how many in the population get affected by the seasonal ‘nasty viral’ every year contributing to the ever increasing diabetic count in the country – so much of which goes undetected and unaccounted for.

Sid belongs to a decent income middle class family that can afford to worry about symptoms as compared to a majority of Indians who have to worry about the next meal. Like Led Zeppelin’s “Stairway to Heaven”, one may wonder how Indians who “look to the West” start excelling in every area that they put their heads into. Is the general absence of the ‘nasty viral’ in the West one of the key factors? These questions, coupled with a recent study that links air pollution to diabetes, scream out that India needs to clean up fast.

**Finally**

Sid’s case does not appear unique. This year’s chikungunya outbreak has been reported to show neurological, kidney and liver impacts too, in the absence or presence of some medications. It is interesting to note that the above impacts are also known to be strongly associated with the onset of diabetes. Thus, it may be time that in the season of ‘nasty virals’, Indian hospitals start measuring routine biomarkers such as urine sugar and blood sugar. While the onset of diabetes is often attributed to possible unknown viral causes, such monitoring may help uncover the yet elusive cause of this dreaded condition.

In the meantime, Sid and his parents hope that the growing body of this 10 year old heals itself over time. Till then, the insulin injections continue. The father in me can only hope, and the scientist in me can only write dispassionately while trying to avoid any conflict of interest in this case study.

**References**

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