A group of kidney patients who observed sil at Padaviya temple

Land cultivated with a traditional paddy variety called' Suwadel'

Maha Wilachchiya hospital

INCREASED AGRICULTURE OUTPUT AND CONNECTED HEALTH HAZARDS

KIDNEY DISEASE

TAKES ITS TOLL ON PEOPLE IN PADAVIYA

By Kelum Bandara

Five years ago, P Sugathapala, 55, of Padaviya in the Anuradhapura district, began feeling faintish after merely two hours of tolling in his field. These bouts of dizziness were soon accompanied by joint pains. The illness persisted for some time, and he was worried about his waning health condition. He went for a medical checkup, and was diagnosed with renal failure.

"Luckily, my disease was diagnosed at an early stage. For the last five years, I am under medication. I cannot engage in hard labour as a farmer any more. I feel tired and faintish when I try to do it. Today, I only keep a few head of cattle as a means of livelihood. I have to spend quite a lot of money for my regular medication," he said, while he balanced a can of fresh milk on his bicycle.

Sugathapala is only one patient among thousands suffering from the Chronic Kidney Disease (CKD) of unknown etiology in the agricultural areas of the dry zone.

The CKD, a killer disease caused by toxic elements of agro-chemicals, continues to take its toll on the lives of people, particularly in the Padaviya and Maha- Wilachchiya areas of the Anuradhapura district. Initially it was farmers, between 40 and 50 who were in the vulnerable group, however data suggests the deadly disease has now reached epic proportions even victimising those as young as 30.

Given the magnitude of the problem, in order to understand the root causes for the spread of this epidemic disease.

> "There are others affected, but not diagnosed yet. We carried out free health clinics to identify patients. This disease has serious social implications.

Dr. Chintaka Wijewardane

He said even primary observations pointed to the use of agro-chemicals with higher levels of arsenic and cadmium as the main reason for chronic renal failure.

Dr. Wijewardane said there are so many atmine have been shown to cause changes in kidney tissue that lead to chronic kidney disease. Approximately 88% of CKD patients had urine arsenic >21 ug/g and/or urine cadmium 0.6 ug/g."

Evidence also shows that a high concentration of arsenic was found in hair and nails of affected people in these areas.

Toxicants, hard water and gley soil cause the disease

Dr. Chintaka Wijewardane, the District Medical Officer (DMO) of Maha Wilachchiya Hospital, has served as a medical practitioner in the affected areas of the North Central Province since 2009. He has been actively involved in research and experiments

Paddy land cultivated in Padaviya

HEALTH HAZARDS

their kidneys through medication and precautions. If the disease has worsened by the time of diagnosis, it will be serious. Then, patients have to be subjected to dialysis treatment which is costly and painful for patients," he said.

Hard water (water that has a high mineral content) and low humic gley soil in the NCP also contributes to the spread of the disease. Hard water tends to absorb heavy metal toxicity caused by arsenic and cadmium in contaminated soil.

"Most patients surveyed, were found to be using groundwater from wells. In the

> "At that time, we worked day and night. Today, I cannot work for more than two hours. I get Rs.500 a month as a charity allowance from the government. It is hardly sufficient

Wijesekara

the area such as Nuwara -Weva and Nachchaduwa Wewa. Water taken from dug

resulted in a low income for their families, leaving their futures in the lurch.

Can agro-chemicals be

RENAL EFFECTS OF ARSENIC TOXICITY

The effects of arsenic toxicity cover a wide range in the human body, but with regard to renal effects, the damage can be life-threatening.

If the arsenic toxicity is chronic, it can cause the death of kidney tubes and subsequent kidney failure.

Additionally, it can cause blood in the urine (proteinuria), which is a sign of kidney damage and potential kidney failure, if not treated immediately. Ultimately, the arsenic is too poisonous for the kidneys to process correctly.

According to statistics the Chronic Kidney Disease of Uncertain Aetiology (CKDu) has so far resulted in the deaths of some 20,000 people while another 34,000 in the Uva and North Central provinces are likely to be affected.

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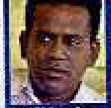
The CKD, a killer disease caused by toxic elements of agro-chemicals, continues to take its toll on the lives of people, particularly in the Padaviya and Maha Wilachchiya areas of the Anuradhapura district. Initially it was farmers, between 40 and 50 who were in the vulnerable group, however data suggests the deadly disease has now reached epic proportions even victimising those as young as 30.



Dr. Chintaka Wijewardane

clinics to identify patients. This disease has serious social implications

Given the magnitude of the problem, in terms of health and socio economic impact, the World Health Organisation (WHO), under an initiative by the government, did extensive research and experiments to identify the exact cause of this disease.

The WHO, based on its studies during the initial phase, has indentified 15 percent of the population in the age group between 15 and 70 to have been affected by the CKD in the North Central and Uva Provinces. Males, over 40, and engaged in agriculture for more than ten years, are at a higher risk of developing this disease.

Furthermore research has found the exposure to toxic substances such arsenic and cadmium can cause this disease.

According to February 13th progress report of WHO research, a high excretion of cadmium and arsenic, toxic factors found in agro chemicals, were found in the urine samples of most patients.

The report said, "In the urine analysis of 496 cases of CKD, 56 percent of patients had a urine cadmium excretion over 1 ug/g creatinine. Data from recent studies show that changes of early kidney damage occurs at cadmium excretion levels of even 0.6-1 ug/g creatinine. About 63% of CKD Patients had urine arsenic levels above 21 ug/g Creatinine. Urine arsenic levels above 21 ug/g cre-

dane, the District Medical Officer (DMO) of Maha Wilachchiya Hospital, has served as a medical practitioner in the affected areas of the North Central Province since 2009. He has been actively involved in research and experiments in order to understand the root causes for the spread of this epidemic disease.

He said even primary observations pointed to the use of agro-chemicals with higher levels of arsenic and cadmium as the main reason for chronic renal failure.

Dr. Wijewardane said there are so many patients in the Padaviya area where he worked earlier before being posted to Maha Wilachchiya. He said he diagnosed some more patients in Maha Wilachchiya.

"There are others affected, but not diagnosed yet. We carried out free health clinics to identify patients. This disease has serious social implications. There are instances where parents cannot give their children in marriage because of social stigma that people in this area are affected with kidney disease. Also, people do not come foward for medical check-ups due to financial constraints. There are no resources for medical check ups in certain cases. Besides, people sometimes do not like to identify themselves as kidney patients. Those are the reasons for patients to remain underdiagnosed," Dr. Wijewardane said.

"If we diagnose the disease at an early stage, we can increase the life expectancy of patients and prevent further damage to

HEALTH HAZARDS

their kidneys through medication and precautions. If the disease has worsened by the time of diagnosis, it will be serious. Then, patients have to be subjected to dialysis treatment which is costly and painful for patients," he said.

Hard water (water that has a high mineral content) and low humic gley soil in the NCP also contributes to the spread of the disease. Hard water tends to absorb heavy metal toxicity caused by arsenic and cadmium in contaminated soil.

"Most patients surveyed, were found to be using groundwater from wells. In the North Central Province, water hardness is extremely high. Therefore, groundwater is contaminated heavily with metals causing health problems for users. In the Nuwara Eliya district, agro chemicals are used in abundance, but the disease is not found because water hardness is low in that area," Dr. Wijewardane said.

Besides, he said 'low humic gley soil' in the NCP also absorbs heavy metals, posing health risks for farmers. Despite the high use of agro-chemicals, the disease is not prevalent to that extent in Jaffna because there is no low humic gley soil.

"I did not take precautions when spraying weedicide or insecticide at that time. I did not use hand gloves or masks and I believe I exposed myself to danger through such recklessness

Suguthapala

Against this backdrop, Dr. Wijewardane considers it important to ensure access to safe drinking water for people in the area, with separate rain fed tanks to be set up in the province.

"We do not find patients with chronic renal failure among those who consume drinking water from major reservoirs in

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Wijesekara

the area such as Nuwara Wewa and Nachchaduwa Wewa. Water taken from dug wells is too hard and contaminated with arsenic and cadmium," he said.

Dr. Wijewardane, in his research work, has found all spray machine operators in the district to have ended up being kidney patients.

"It shows there is a direct link between agro-chemicals and this disease," he said.

Patients also suspect a direct link between the two.

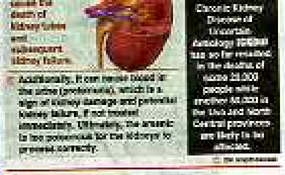
Farmer Suguthapala said he used agro chemicals in his agricultural activities.

"I did not take precautions when spraying weedicide or insecticide at that time. I did not use hand gloves or masks and I believe I exposed myself to danger through such recklessness," Suguthapala said.

W.M. Wijesekara, 64, is another farmer who was diagnosed with an early stage of renal failure in 1994 and is under regular medication. Being unable to do any productive work on his field, he depends on his children for his medical expenses.

"At that time, we worked day and night. Today, I cannot work for more than two hours. I get Rs.500 a month as a charity allowance from the government. It is hardly sufficient," he said.

Almost all patients gave harrowing tales about their saga. Their illness has



resulted in a low income for their families leaving their futures in the lurch.

Can agro-chemicals be discarded?

Despite health risks involved, it has been difficult to discourage farmers from using chemical fertiliser, weedicide and pesticide. For a bumper harvest, agro-chemicals have become an important input and farmers assume it is difficult to work without using agro-chemicals. An increased output of agricultural products with low inputs is needed to meet the food requirement of a growing population.

But, as a measure to discourage the use of agro-chemicals, there are attempts being made to encourage farmers to adopt traditional agricultural practices which do not require the use of agro- chemicals.

In Padaviya too, a group of farmers have cultivated traditional paddy varieties this season without the use of any chemical fertiliser - however such varieties yield low harvests.

Therefore, whether farmers can sustain it in the long run is questionable.

The authorities are confronted with the challenge of devising a mechanism that serves the two-fold purpose; abandonment of agro-chemicals and sustainability of food security.

Pic by Samantha Perera