EDITORIAL

Time to Ban Paraquat: a Deadly Poison Masquerading as a Herbicide in Bangladesh

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In the heart of rural Bangladesh, where farming is not just a livelihood but a way of life, a silent killer lurks in sheds, fields, and storage rooms -paraquat, a highly toxic herbicide. Over the past years, this chemical has been increasingly misused as a means for suicide, particularly among vulnerable agricultural workers and rural youth and also some cases of accidental poisoning are observed. The tragic pattern is unmistakable, and the time has come for Bangladesh to impose an outright ban on paraquat.

Paraquat is one of the deadliest herbicides known to science, with no known antidote. Chemically it is a toxic bipiridyl compound that was discovered in 1950s and found its way into agricultural use by 1962. This liquid herbicide was primarily used for weed and grass control but due to its highly poisonous nature was soon categorized as a "restricted-use" herbicide [1]. Ingesting even a small amount - as little as 10-20 milliliters of the concentrated form can lead to multi-organ failure and death within days. The principal target organ for paraquat poisoning is the lung and kidney. Paraquat has a structural similarity to naturally occurring polyamines that are taken up by the alveolar cells and hence paraquat concentrates in alveolar type I and II cells. Paraquat is also actively secreted by the kidney leading to its accumulation in the proximal tubular epithelial cells at higher concentrations. On accumulation in the pulmonary alveoli and the nephrons, paraquat causes redox cycling and production of toxic reactive oxygen species. This oxidative stress overwhelms the cellular defense mechanisms and leads to pulmonary damage (alveolitis and fibrosis) [2]. In Bangladesh, where mental health support is scarce and agricultural chemicals are loosely regulated, paraquat has become an alarmingly easy method for impulsive suicide attempts.

Hospitals across the country, especially in tertiary centers, frequently report cases of fatal paraquat poisoning, often involving young people from low-income farming families. Once consumed, it causes irreversible damage to the lungs, kidneys, and liver. The death is slow, painful, and in most cases, inevitable. The suffering of these patients and their families is heartbreaking - and entirely preventable.

Bangladesh is not alone in facing the dangers of paraquat. Recognizing its public health risks, over 50 countries, including the European Union nations, South Korea, and China, have already banned the herbicide. Even in the United States, its use is severely restricted due to its high toxicity.

So why is paraquat still legal in Bangladesh?

The answer lies in a mix of outdated policies, lack of awareness, and resistance from sections of the agricultural sector. Yet, no economic argument can justify the ongoing loss of life. Alternatives to paraquat exist and are already in use in many parts of the world. Banning paraquat is not a blow to agriculture - it is a step toward safe and healthy farming.

The repeated and predictable nature of paraquat-related deaths qualifies it as a public health emergency. Mental health crises are complex, and no single policy can prevent all suicides. But restricting access to lethal means is a proven, evidence-based strategy in suicide

prevention. Removing paraquat from the market would save lives, give individuals in distress a second chance, and send a powerful message that public health matters more than profit margins.

Bangladesh has made remarkable strides in health, agriculture, and development. But allowing a known poison to circulate freely is a tragic contradiction to those achievements. It is time we put an end to this avoidable source of suffering. Let the voices of grieving families and lost futures move us to act - before more lives are needlessly cut short.

Paraquat must go. Lives are at stake.

References:

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