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Rational Use of Medications: Eccentric or Non-existent?

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ABBREVIATIONS

Adverse drug events (ADEs)

Non-steroidal anti-inflammatory drugs (NSAIDs)

The Centers for Disease Control and Prevention (CDC)

World Health Organization (WHO)

INTRODUCTION

Proper use of medicine or taking medicine in correct order is essential to cure any disease. Medication adherence usually refers to whether patients take their medications as prescribed. According to the WHO, lack of adherence to treatment regimens leads to major problems among patients, mostly with chronic illnesses. "Right administration" depends on at least 5 right factors right patient, right drug, right time, right dose and right route [1]. "Medicines won't work if you don't take it right". This simple fact is not understood by most people in the world, as a result still more than half of the patients with chronic diseases in the developed world do not take their medicine correctly says WHO [2].

Patients with chronic diseases may find it particularly difficult to adhere because they frequently need to take their medications for an extended period of time, sometimes for the remainder of their lives. There are several reasons why patients may find it challenging to adhere to treatment regimens, and CDC estimates that medication non-compliance leads to 30 to 50% of chronic disease treatment failures. Poor adherence may cause treatment outcomes to not be achieved, symptoms to worsen, and one's health to deteriorate [3].

In the UK, up to 50% of medicines are not taken as intended and 60% of publicly funded healthcare systems of the UK National Health Service (NHS) patients failed to receive the right treatment within 18 weeks [4-6]. According to a New Zealand-based Journal medication non-adherence alone accounts for at least 10% of hospitalizations, $300 billion in annual

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medical costs, and more than 1,25,000 deaths in the US alone [7]. A recent Canadian study found that 30% of patients stop taking their medication before it is instructed, and one in four do not fill their prescription or take less than prescribed [8]. Medication non-adherence contributes more than half of the $500 billion total avoidable costs attributed to suboptimal medicine use globally each year [9].

A strange similarity can be found in under-developed, developing countries and the so called developed world in the West or the Middle-East when it comes to not taking medicine properly. More than half of the antibiotics worldwide are sold without a prescription and CDC stated, 30-50% of antibiotics prescribed in hospitals are inappropriate or unnecessary [10, 11]. A recent study published by The Lancet, funded by the Bill & Melinda Gates Foundation, Wellcome Trust, states that nearly 5 million deaths worldwide in 2019 were related to bacterial resistance, which is expected to double by 2050 [12].

Globally, NSAIDs are responsible for at least 650,000 hospitalizations and 165,000 deaths annually [13]. Overuse of this class of drugs can cause kidney injury, and their side effects can be 3 to 4 times higher in kidney compromised patients [14]. Many studies have reported widespread misuse of these drugs in Dengue, Chikungunya and Covid-19 patients. Especially in Dengue or Covid-19 patients, it is more important to maintain the hydration level of the body than to bring down the fever with the pain killers. In children, the use of excess Paracetamol syrup or suppositories may cause stomach irritation, which hampers digestion and led to vomiting and ended up with hospitalization. Most hospitalizations or ICU admissions among those patients could be prevented, with few exceptions, simply by preventing dehydration at home with saline and fruit juice or simply by drinking more water.

More or less 40% of Covid-19 patients report sleep disturbances–use of Benzodiazepines in Covid-19 patients increases the incidence of delirium, depresses the system in patients with compromised respiratory functions, and contraindicated with some anti-viral medications [15, 16].

Around 300 metric tons of morphine-type painkillers are used worldwide each year, less than 1% of which distributed to low-and-middle income countries, says the American Journal of Public Health [17]. So their misuse and related side effects are also retained by the developed world.

According to a WHO report, only half of patients in developed countries adhere to treatment guidelines for chronic diseases, which is much less in developing countries [18]. Several studies among diabetic patients in South Asian countries have shown that nearly half of patients do not adhere to their prescribed medication and are at risk of acute and long-term complications, resulting in increased hospitalization rates and medical costs [19, 20].

Three-quarters of elderly patients worldwide are unable to adhere to appropriate long-term treatment regimens—due to multiple physical complications and additional medication burden [21]. Elderly patients taking at least 5 medications are at increased risk of mild cognitive impairment, dementia, falls, frailty, disability, and mortality, while ADEs are estimated to be 5% to 28% of acute geriatric medical admissions [22, 23].

A recent study by the American Heart Association revealed that patients with high blood pressure do not follow treatment guidelines because of (1) suboptimal dosing or prescribing the wrong medication (2) lack of insurance or lack of health care access and (3) patient failure to comply prescribed medication or other lifestyle guidelines [24].

“Medical costs are barriers to adherence to proper clinical guidelines for long-term diseases in poor countries” although discussed in many forums but forgetfulness, confusion about the duration required for medication use and mistrust about the overall efficacy of medication are among the reasons for non-adherence to diabetes management protocols in Middle Eastern countries [25].

Epilepsy is still seen in most countries of the world as an evil spirit although two-thirds of patients can become seizure-free with adequate treatment, poor adherence to proper guidelines is a major problem for effective recovery [26].

Several identified reasons for non-adherence to treatment guidelines for chronic diseases:

1. Patient’s socio-economic status: low health literacy, lack of family or social support network, unstable living or homelessness, financial insecurity

2. Treatment-related: complexity and duration of treatment procedures, frequent changes in medication regimen, lack of immediate results, real or perceived unpleasant side effects, interference with lifestyle

3. Health system-related: high treatment costs, limited health system for patient education and follow-up, doctor-

patient relationship, patient trust in health care, long waits, lack of patient information materials

4. Patient-related: visual-hearing and cognitive impairment, mobility and dexterity, psychological and behavioral factors, perceived risk of disease susceptibility, superstitions and stigmatization by disease, etc. [27]

CONCLUSION

Finally, it can be said that patients' knowledge and perception of the disease is the main driving force in determining their adherence to the treatment regimen. Health care providers should explore providing more effective health-education to identify patients' attitudes toward disease, trust in medications, psychological stressors, and increase medication adherence

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CONFLICT OF INTEREST

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INFORMED CONSENT

N/A

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