

OPINION ARTICLE

Nonadherence to doctor's instructions

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We live in the era of revolutionary scientific developments that are centered on the group and more and more on individual health. One segment of these developments, so called evidence-based medicine, uses group-centered data or meta-analyses to derive mean therapeutic recommendations. However, this approach does not provide adequate solutions for the outliers. So, precision medicine, which provides a data-driven approach focusing on the individual or citizen-centered health care may provide a sustained well-being. Integration of evidence-based and precision medicine could offer clinically needed knowledge on individual health [1].

Despite such detailed scientific approaches, nonadherence or non-compliance to any type of therapy or prevention of diseases usually causes poor outcome. In chronic medication, such as hypertension, nonadherence is common. Approximately 43% to 65% of patients who fail to adhere to prescribed regimens are hypertensive patients, and this contributes to the occurrence of associated diseases. The global burden of cardiovascular disease and its prevalence may increase to 30% by the year 2025. Self-report questionnaire does not give proper information on compliance, and physicians sometimes use urine detections of drugs as accurate tool for directly monitor adherence [2]. Such approach increases compliance.

Beta-adrenergic blocking agents are equivalent in relations of antihypertensive efficacy, but it is often preferable to use a cardioselective beta-blocker (acebutolol, atenolol, betaxolol, bisoprolol, metoprolol). However, cardioselectivity is only relative property because it diminishes as the dose of the beta-blocker increases. In the presence of severe asthma or COPD cardioselective beta-blockers offer no advantage over nonselective beta-blockers, and they should not be used. Since adverse effects of beta-blockers include fatigue, insomnia, and sexual dysfunction in men, these effects intensify non-compliance [3]. Compliance is very important for geriatric hypertensive patients and it may be enhanced using a drug dispenser (one compartment per day with marked days of the week) [4].

A pandemic caused by a new type of coronavirus (SARS-CoV-2) continues to spread across the globe. This new viral disease, COVID-19, emerged a century after the Spanish flu pandemic, which affected one-third of the world's population. Since no cure exists as yet for COVID-19, and it will take time to produce a suitable vaccine, strict epidemiological measures were implemented [5]. This resulted in the largest quarantine in history – between 50 and 60 million people in several Chinese cities were isolated, group meetings were cancelled, schools were closed, and travel was prohibited. In the time of home isolation and social distancing,

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many people tend to increase their cigarette use, including the relapse of former smokers. It is well known that smoking damages the immune system and lung tissues. As a result, chronic smokers are more sensitive to infectious agents. They are twice as likely to get the flu, and flu symptoms are usually more severe in smokers. In addition to information provided about the harmfulness of increased cigarette utilization for the outcome of COVID-19 infection, smokers should be advised to reduce or quit using cigarettes [6,7]. Ex-smokers should use non-pharmacological procedures, or they might temporarily use pure nicotine pharmaceutical preparations or the nicotine antagonist, bupropion. Bupropion reduces nicotine dependence and may be used in an abstinence crisis.

Epidemiologists implemented various protective measures, such as self isolation, face masks, and social distancing. However, non-compliance is frequently evident, especially in some countries, and the spread of SARS-CoV-2 increases. The following fiction story illustrates nonadherence to epidemiologist's instructions, nonetheless it happy ended.

Breaking the rules of social distancing

They lived on the same street in apartments in high-rise buildings that were less than two blocks away from each other. Both had dogs. Ben walked his Schnauzer named Jake at least once a day, and his wife walked the dog twice. Jen, a school teacher, now single and living alone, walked her little Shih Tzu, Molly, three or four times a day.

Ben recognized many dogs from that street, including Jen's Molly. In this compact Chicago neighborhood, when one dog owner would meet another out on a walk, both would stop and allow the dogs to sniff each other while the owners exchanged greetings and a moment or two of polite talk. It was a special sort of social communication initiated by animals that were as much family as their children.

Ben and Jen knew each other slightly from these outside encounters. Ben noticed that Jen was a handsome woman, at least according to his regular classification of women, but she gave no indication of her feelings towards him. For her part, Jen noted that Ben always dressed well in nicely matched the colors and that he had a pleasant voice.

Now this casual and pleasant life in a big city neighborhood had been recently interrupted by a viral pandemic that began far away but rapidly spread across the continent. As this viral illness crept into their city, health experts and authori-

ties advised the closure of all schools, universities, restaurants, cafes, hairdressers, and every gathering of citizens at work, sports, or entertainment. These same experts recommended that people walk outside, but keep at least two meters away from each other. People should remain home and avoid contact with each other, but the dogs had no way of knowing this. They still needed their walks.

To escape the virus, Ben's wife left town to stay with her parents, who lived in a small town in a single-family home. She took Ben's Jake with her, and their son, a second-year college student, joined her there. Ben elected to remain in the city alone to take care of their apartment, or so he told himself. But it was because Jen's parents did not like him from the very beginning of his marriage to their daughter.

Like three million other people living in that big city, Jen stayed in her apartment. Although she used to have a romantic companion living there with her, they had parted ways two months ago. She continued to walk her dog regularly, but she did not go off to work at the school. Instead, she taught her courses via the internet.

This situation would tend to make anyone lonely. Ben was no exception. He missed his job, Jake, and the opportunity to get outside for walks. His solution was to take up jogging - it would get him out of that apartment where he could see people without having close contact.

One Friday evening, a few days ago, Ben jogged around a corner and came face to face with Jen and Molly as they were leaving their apartment building. Molly gave a sharp yip of recognition, and dashed up to Ben, pulling Jen along behind her.

Both Jen and Ben wore facemasks. In their city, it was a rule that people living in high-rise buildings must wear facemasks while in an elevator and while passing through common areas. Because there was no right place to keep it when one reached the street, most people just kept a mask on, sometimes making them hard to recognize. Although Molly's nose told her that this was her friend, Ben, Jen had no such help.

"Ben, is that you?" she asked. "Where is "Jake?"
"Oh, hi Jen, I'm so glad to see you!" he answered. My whole family, including Jake, has gone to stay in the country to escape the virus."

"Well, good for them! I wish I could leave too - it is so hard to be confined to a small apartment! I do not know what to do with myself!"

They continued the conversation about the new rules of isolation. Their voices sounded a little different, due to the masks, but this didn't stop the exchange of thoughts. For the first time in more

than two years, they found themselves talking for a long time. This isolation due to fear of the virus led them to share their thoughts on the present situation and other life problems. They realized that they had already walked for three blocks, back and forth several times. Their personal stories became more and more enjoyable for them.

Lastly, Ben said that he has today read a surprising news: a famous CEO is accused by his young staff assistant of sexual harassment. At that times, she was in her twenties, and he was almost twice older. The boss allegedly first indecently touched her body when they met in empty hallway, and said:

"Should we go somewhere now?"

The girl replied: *"No, I don't want!"*

If I ask you, said Ben to Jen, a similar question:

"Should we go somewhere now?"

Jen answered at haste: *"Yes, I agree."*

So, they went into her apartment and spent there the whole night and the next day. Thus, this very dangerous corona virus helped to the birth of a love or passion. Evidently, no one knows how many similar cases of non-compliance were recorded in the quite long reign of this dangerous bug.

Epilogue

Non-adherence or incomplete adherence to drug prescriptions or other aspects of medical treatment is common. It has been estimated that

only half of all drug doses are taken as prescribed. Thus, the treatment outcome of self-administered medication largely depends on patient adherence. The patients adhere or non-adhere to different aspects of doctor's recommended treatment program (medication, exercise, diet, cigarette smoking) according to the way they understand the meaning to those activities [8]. Also, patients' non-adherent behavior intends to preserve their self-esteem, freedom, autonomy, well-being, and personal reasoning if the adherence is not worth the extra effort.

From the year 1940 until now, around 400 new infectious pathogens have been identified [9]. This has provided an opportunity for scientific researchers to prevent, treat, and eradicate new infections. The production of vaccines and vaccination of a significant part of the population has proven to be successful in previous dangerous infections, but it is a time-consuming procedure. In the meantime, it is necessary to prevent spread of the new infection and reduce mortality. Strategies for controlling the 2019 coronavirus pandemic are focused on non-medication interventions, such as social-distancing, contact-tracing, quarantine, isolation, frequent handwashing and the use of face-masks. But, non-adherence or partial adherence to these interventions of the epidemiologists frequently depends on the public behavior.

Conflict of interests

The author declares no conflict of interests.

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