Case Report

Falls and SGLT-2 inhibitors in geriatric patients—A case report

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Abstract

With this case report, we want to assess the synergistic effect of both a diuretic and an SGLT-2 inhibitor on the fall event of a patient who is 65 years old and has a history of repeated falls before. After we modified the medications appropriately, she has never experienced a fall event again. So as we know, older adults do not take fall events as a pathological condition instead of a normal physiological aging process. So primary-care physicians should question the fall history of an older patient before starting a drug such as SGLT-2 inhibitors, which is known as an agent that has side effects including falls, dehydration, etc.

Keywords: Aged, dehydration, diabetes mellitus, sodium-glucose transporter 2 inhibitors

Introduction

Falls usually occur, specifically in older patients, when impairments in multiple domains result in the decline of the compensatory ability of the individual.[1,2] Geriatric trauma consists of up to 25% of trauma cases and the 5th reason of death in the older people.[3,4] Older people with a history of a fall in years before would probably have a subsequent fall again.[5] In earlier studies, fracture, head trauma, or significant lacerations were found to result in significant injuries that were consisted of 5–10% of falls among community-dwelling older adults.[6] In older population, 60% reported moderate activity restriction and 15% severe activity restriction due to fear of falling.[7] A significant reduction in blood pressure occurs upon standing mostly due to autonomic reflexes are impaired, or intravascular volume is markedly depleted such as orthostatic hypotension.[8,9] As we get older, because of the body water content decreases, the risk for delirium and dehydration increase.[10] With this case report, we criticize a new antidiabetic drug when used with other fall-related medications in a patient who has a fall history.

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Case Presentation

A patient who was 65 years old charged in our internal medicine ward after diagnosed with hyponatremia (124 mg/dl). She had fallen asleep at home while standing up. Her neurologic examination and cardiac pathologies were excluded. There was no edema in extremities, no breathing difficulty, or any other findings in her physical examination. In her history of medication, we noticed that she was on SGLT-2 inhibitors (1 year), hydrochlorothiazide (10 years), valsartan (10 years), lercanidipine (5 years), metformin (10 years), and flurbiprofen (5 years, on-demand). She had undergone two different orthopedic surgeries after many fall events. In 2015, she underwent an implantation for gonarthrosis. But she has experienced frequent fall events for about 7 years. She claimed that especially after SGLT-2 inhibitors commenced by a physician, her frequency of falls increased. We calculated her blood pressure 130/80 mmHg in sitting position and just after 110/60 mmHg in standing position. She described dizzy after she stood up quickly. We modified her drugs, and the first

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SGLT-2 and hydrochlorothiazide were discontinued and replaced them with nebivolol and vildagliptin instead. After medication modification with administration of the hypertonic, Na level had reached to 135 mg/dl in 4 days. She has not experienced a fall event any more after discharged.

Discussion

In the geriatric population, falls are frequent, and most of the time, patients do not share fall experiences with physicians. And it is the same for health-care providers because they usually do not ask older adults whether there is any fall event in their history or not.[3] But when a physician chooses medication, it would be appropriate to ask older people if there is any fall history or no. As we know, there are many medications (sedatives, antihypertension drugs, hypoglycemic drugs, etc.) that could cause fall events with their side effects or adverse reactions, etc.[7] As we age, autonomic reflexes are impaired, or intravascular volume is markedly depleted. There would be a tendency to orthostatic hypotension, which also can be prevented by the modifications of appropriate drugs to some extent. In our case, it would be better not to use an SGLT-2 in a patient who is 65 years old and also who has a history of fall event. We should start both a diuretic and an SGLT-2 inhibitor together in a geriatric patient after we outweigh the risk and benefits of medications carefully. Otherwise, because of the synergistic effects of drugs, a patient can have a new diagnosis after a prescribing cascade, which could be solved just by medication modification alone.

Conclusion

Geriatric patients are vulnerable and frail and also present mostly with atypical symptoms, which make the diagnosis unclear. So primary-care physicians should be careful for the older adults with a history of falls. New diabetic agents might be the reason of falls in geriatric patients, including SGLT-2 inhibitors. Because of the fact that aging is misperceived by many people as a disease that leads to falls, primary-care physicians should question whether a geriatric patient experiences a fall in the past or not as part of a comprehensive geriatric assessment.

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Conflicts of interest

There are no conflicts of interest.

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