Prevention of patient falls in University Hospital

Samira Alsenany BSN, MSc, P.G Dip ANP, MPhil phd University of Sheffield

Falls are responsible for considerable morbidity, immobility, and mortality among older persons. In healthcare facilities, patient falls have been a major contributing factor associated with patient injuries that result in increased length of the hospital stay and costs (Wayland et al, 2010). From a historical standpoint, nursing's concern for patient safety is nothing new. As early as 1859, Florence Nightingale observed that there were strikingly fewer falls when all the patients were in a single open ward and could be observed. Not surprisingly, she advocated the extensive use of glass to improve patient observation. Miss Nightingale's suggestion about the use of glass is one example of how we can eliminate one obstacle, inadequate observation, to provide for better patient safety (Kulikowski, 1979). Falls have many different causes, and several risk factors that predispose patients to falls have been identified.

This study looks at the problem of falls in a University Hospital in Jeddah, Saudi Arabia, focusing on identifiable causes, risk factors, and preventive approaches. Administrative approvals were obtained from the directors of hospitals to carry out the study. The main aim of this study was to reduce the frequency of preventable injuries and accidental falls. One hundred and four patient accidents were used for this study over a three-year period (2003-2005). This study was based on a review of accident reports and was designed for the purpose of uncovering factors related to accidents and to use the findings as a basis for initiating action. All (104) patients studied had an incident report completed by a member of the nursing staff and a physician. The problem in this study was to identify the factors relating to patient accidents and falls and to examine the relationship between these factors (sex; age; diagnosis; time of accident; day of admission; injuries; and treatment). However, to prevent falls, a systematic therapeutic approach to patients who have fallen is necessary, and close attention must be paid to identifying and reducing risk factors for falls among frail older persons who have not yet fallen.

This research showed that, among specialties, the highest incidence of falls (60 events) occurred in the medical unit (57.6%). Patients in the medical unit have chronic conditions such as neurological diseases, cardiovascular diseases, carcinoma with debility (motor and sensory) that predispose them to a high risk of accidents. However to gain insight into this issue, a review on the risk factors for falls in hospital settings showed as strong predictors of falling: gait instability, lower limb weakness, urinary incontinence, frequency or need for assisted toileting, previous fall history, agitation, confusion, impaired judgment and prescription of "culprit" drugs, and in particular centrally acting sedative hypnotics (Oliver et al., 2004).

Significantly, in this study, most accidents occurred at busy times of the working day. The highest incidence of falls (86 events) (82.69%) occurred between 5.00 am and 5.00 pm. Many factors may contribute to the increased number of accidents during this time (change in shift activities, meal time activities or early morning when patients go to the bathroom). Similarly, Tutuarima et al (1997) found that the majority of accidents happened in the daytime. This may represent a straightforward relationship between work volume and frequency of accidents or it may be because the nursing activities performed at those times put patients at greatest risk.

Furthermore, this study shows that most falls occurred during the first week of hospitalisation (73 accidents; 70.19%). This may be due to patient disorientation in a new environment. Patients need to adjust to their new environment, which could be helped with staff showing them the location of the bathroom, how to use the bell call, and safe use of wheel chairs and commode chairs. It was found that when visitors were with patients, side rails came down, the call bell was moved out of the way, and restraints were removed. It is likely that these factors contributed to the increased number of accidents during visiting hours (4.00 pm to 7.00 pm). Similarly, in a study of falls by hospitalised elderly patients, it was found that half of falls (51.5%) occurred within the first week of hospitalization and particularly within the first three days. The majority of events happened in the day time and in the patients' room during the first week of hospitalisation and during the interval when hospital density was greatest (Corsinovi et al., 2009).

While Rubenstein and Josephson (2002) found that the incidence of falls rises steadily from middle-aged people and peaks in those who are over 80 years. I found in this study that the highest incidence of falls (65, 62.5%) occurred mostly to patients aged 60 years or above - due to loss of control-related physiologic changes in the musculo-skeletal system, including postural changes, and osteoarthritis, with or without a period of unconsciousness. Consistent with this idea, Arlene (1992) points out that aging itself causes changes in the body that increase the risk of falling, vision making it difficult to see hazards. Similarly, Balko (1993) notes that 170 patients who fell while in hospital, it was discovered that most of them were over 60 years of age and large number of falls occurred during the hours of darkness: typically as the patient was getting out of bed to use the toilet. Patients with bowel or bladder problems, who were on specific medications, were confused or disoriented, or who had a history of previous falls, were designated as being 'high risk'. The study suggested that increased vigilance of these patients could reduce the number of serious falls.

I found that 25 patients (24.0%) needed nursing measurement, i.e. observation of vital signs. Twenty-two patients (21.1%) had no need of treatment from a nurse or a physician; twenty (19.23%) needed first-aid and dressing due to bleeding; eight (7.69%) needed an alteration in medication; three patients had only minor injuries (laceration, abrasions, haematomas); and one patient needed sutures for a head wound. Two patients needed a cast applied because of fractures; one patient was admitted to the intensive care unit due to the severity of the accident; and one patient needed blood transfusion due to bleeding from the accident. While, some studies show that females have more falls and accidents than males (Laurence et al., 1994), this was not replicated in my study as there was no difference in falls between females and males. Similarly, Corsinovi et al. (2009) found no difference in fall incidence between men (12.9%) and women (10.0%).

There is no robust evidence that restraints prevent fall injuries or that removing them causes such injuries (Evans, and Strumpf, 1989), though injuries as a result of the use of physical restraints have been documented (Miles, 1992). When used as a strategy to reduce mobility, in general, restraints cause more harm than benefit, and in most cases they should be avoided (Nyman and Oliver, 2010).

In view of these results, several recommendations are offered.
This study suggests that a focused history and physical examination after a fall can help identify underlying causes of falls and contributing risk factors. In addition, regular evaluation in the hospital can help identify patients at high risk who can then be targeted for specific treatment and prevention strategies.

Implications for nursing practice

1. Nurses should not overestimate the weight threshold beyond which injury can occur when they are giving assistance to patients normally considered light.
2. In view of the trend toward increasingly early mobilization of patients, the role and function of the nurse when giving mobility assistance to physically dependent patients should be reviewed.
3. Handling risk assessment of patients should be carried out on admission and in the event of any significant changes in their handling requirements thereafter.
4. Assessment should include details of the patient's mental and physical states, handling methods, staff numbers and equipment needs.
5. Nurses should be provided with adequate workspace, training and equipment of assisting dependent patients.
6. Risk assessment should be taught as part of the gerontological nursing programme. Educational programs for nurses and physicians should also cover the interrelationship of medication usage, disease states, and the incidence of falls among high-risk patients, as well as physiologic changes in the nervous system that make the elderly more susceptible to fatal injuries.
7. Learning for nursing staff on the documentation of incident reports should be reinforced.
8. Training should be provided in activities of daily living for nursing staff and patients, with a focus on safety and toilet transfer.

Conclusion

Many strategies for the prevention of falls have been tried, with mixed success. The most successful interventions consider the multi-factorial causes of falls and include interventions to improve strength and functional status, reduce environmental hazards, and allow staff to identify and monitor high-risk residents.

Environmental assessment identifies and removes potential hazards (for example, clutter, poor lighting, and uneven floor surfaces), and leads to modification of the environment to improve mobility and safety (for example, the installation of grab bars and raised toilet seats and the lowering of bed height). Specific environmental interventions should include the following: adequate lighting in all hallways and stairwells, bathroom grab bars next to the toilet and, in the tubs or shower, non-skid mats in tubs or shower, raised toilet seats, handrails in the hallways, secure stair way banisters, and furniture that is easy to rise from. Of special importance is bed height. Better physical design of hospital equipment such as patient beds may reduce patient falls and injuries (Tzeng and Yin, 2008). Most beds are adjustable and are often in an inappropriately raised position for the convenience of the staff. Proper bed height is such that when the patient sits on the side of the bed with feet touching the floor, the knees are bent at a 90-degree angle. Furniture can also be rearranged to support an unstable patient for ambulating to the bathroom. Strategies that reduce mobility through use of restraints may prevent falls but also attract other problems and in the majority of cases should be avoided (Nyman and Oliver, 2010).

Nursing interventions are very important but consist mostly of information or education, promotion of patient participation, and structuring of the environment. Once a patient has been identified as being at high risk of falling, a nursing care plan is usually developed with the aim of preventing injury. Such interventions include: indicating on the medical chart and the patient's door, that the patient is at high risk of falls, moving high-risk residents to a room close to the nursing station to increase observation, periodically reassessing patients after new episodes of illness or change in medication, lowering side-rails and bed heights for patients who climb out of bed, increasing the nurse-to-patient ratio, and

instituting fall prevention education for patients and staff are recommended.

References

Arlene, O. (1992). Prevention falls in the elderly. *Geriatric Nursing, January / February*, 43-44.

Balko, G. A. (1993). Risk management for nursing homes: A primer. In *long term care administration handbook*, edited by S.B. Goldsmith. Gaithersburg, Md: Aspen, pp521-527.

Corsinovi L, Boa M, Ricauda Aimoninoa , Marinelloa R, Gariglioa F, Marchettoa C, et al. (2009). Predictors of falls and hospitalization outcomes in elderly patients admitted to an acute geriatric unit. *Archives of Gerontology and Geriatrics, 49*(1), 142-145.

Evans, L. K., & Strumpf, N. E. (1989). Tying down the elderly: A review of the literature on physical restraint. *Journal of the American Geriatrics Society, 37*(1), 65-74.

Kulikowski, E. (1979). A study of accidents in a hospital. *Supervisor Nurse, July*, 44-58.

Miles, I. (1992). Death caused by physical restraints. *Gerontologsit, 32*, 762-766.

Nyman, S. R., & Oliver, D. (2010). Preventing falls and avoiding restraint. In rights, risks and restraint-free care of older people, R. Hughes, ed., Jessica Kingsley Publishers, London, pp. 167-177.

Oliver, D., Daly, F., Martin, F.C., & McMurdo, M. E. (2004). Risk factors and risk assessment tools for falls in hospital in-patients: A systematic review. *Age Ageing 33*, 122-130.

Rubenstein L, & Josephson K. (2002). The epidemiology of falls and syncope. *Clinics in Geriatric Medicine*, *18*(2), 141-158.

Rubenstein, L.Z., Josephson, K.R., & Robbins, A.S. (1994). Falls in nursing homes. *Annals of Internal Medicine, 121*(6), 442-451.

Tutuarima, A. J. H., Van der Meulen, R. J., De Haan, A., Straten, V., & Limburg, M. (1997). Risk factors for falls of hospitalized stroke patients. *Stroke*. *28*, 297–301.

Tzeng, H., & Yin, C. (2008). Heights of occupied patient beds: A possible risk factor for inpatient falls. *Journal of Clinical Nursing, 17*(11), 1503-1509.

Wayland, L., Holt, L., Sewell, S., Bird, J., & Edleman, L. (2010). Reducing the patient fall rate in a rural health system. *Journal for Healthcare Quality: Promoting Excellence in Healthcare, 32*(2), 9-15.