Orthogeriatric Nursing in the Emergency and Perioperative In-Patient Setting

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As the population ages, musculoskeletal trauma in older people will be a growing challenge. Although management of older people following trauma has some similarities to that for all trauma, there are also differences and specific considerations relating to ageing. The most common cause of injury in older people is a fall, so fall-related trauma will be the focus of this section while acknowledging that the care of elderly trauma, whatever the cause, is based on the same principles.

The aim of this chapter is to outline the care of older people with fragility fractures of the hip, the most significant injury requiring orthogeriatric care. Although the chapter is concerned with nursing interventions in orthogeriatric care generally, hip fracture is the most common reason for admission to an orthopaedic unit and the complexity of needs, prevalence, number of bed days and cost means that the focus of care tends to be predominantly on this category of injury. The principal skills and knowledge needed to look after patients with hip fractures well apply across the management of all older people with fractures and includes all the fundamental aspects of nursing care for the adult as well as specialised interventions for older people [1, 2].

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5.1 Learning Outcomes

At the end of the chapter, and following further study, the nurse will be able to:

- Identify crucial factors that impact on the outcomes of hip fracture
- Explain hip fracture types and their management
- Deliver evidence-based acute and perioperative care to patients with hip fracture
- Maintain safety and prevent and recognise complications
- Comprehensively prepare for patient discharge.

5.2 Perioperative Care

Surgery is the preferred treatment for hip fracture because it provides stable fixation, facilitates full weight bearing and decreases the risk of complications [3]. Conservative management carries additional risks of immobility, thromboembolism, pressure injuries, other complications and loss of independence. There are three phases to perioperative care: preoperative, intraoperative and postoperative.

The preoperative phase is the period prior to arrival in the operating department for surgery. The goals are to stabilise the injury, manage pain and restore function, and standardised preoperative assessments and patient-centred management protocols are needed. The aim is to facilitate prompt preparation for surgery through coordinated orthogeriatric and anesthetic care.

Intraoperative care aims to mitigate the pathophysiological effects of surgery without destabilising the patient's physiology. Patients are at substantial risk of perioperative morbidity and mortality due to age and frailty, so they have decreased physiological reserve; one or more comorbidities, polypharmacy and cognitive dysfunction are common and can have a negative impact on physiology.

Postoperatively, orthogeriatric care aims to mitigate the effects of surgery and remobilise, re-enable and remotivate patients in preparation for discharge, ideally back to their place of residence before the fracture. The early postoperative phase is crucial, as delayed remobilisation is associated with prolonged hosptial stay [4]. Postoperative care includes, therefore, early mobilisation, pain management, postoperative hypotension and fluid management, postsurgical anemia management, delirium assessment and nutritional optimisation.

5.3 Preoperative Care

Sustaining a hip fracture is a sudden traumatic event, threatening many aspects of patients' lives and a forceful reminder of their mortality [5, 6]. Factors affecting outcomes following hip fracture are dominated by restoring function, so physical care attracts the most attention. The primary goal of nursing care for the older adult with fragility hip fracture is to maximise mobility and preserve optimal function [1, 2]; psychosocial factors, however, must be incorporated into a holistic approach to care

so that patients can be motivated to rehabilitate [1, 5]. Assessment and subsequent care is best provided by effective multidisciplinary team working based on sound "orthogeriatric" principles; treating the fracture while considering the causes and effects of the fall and the unstable comorbidities and initiating effective rehabilitation while considering bone health with the aim of preventing further fractures.

Emergency departments (EDs) are noisy, busy, overstimulating places, making them inappropriate care environments for vulnerable older people in a state of personal and physical crisis. Avoiding the impact of this situation requires consideration of the following three principles [7]:

- *Timeliness*—avoiding unnecessary and unwanted delay
- *Effectiveness*—aiming for optimal outcomes using the best available evidence
- *Patient-centeredness*—care that is respectful of and responsive to individual needs.

Providing care to older people following trauma must follow the same principles as for all age groups, using the ABCDE approach. The normal and abnormal changes of ageing, compounded by active comorbidities, mean that morbidity and mortality are increased concerns. Examples of physiological considerations relating to ageing include:

Airway—ageing causes degeneration of the physiological airway and musculoskeletal pathology, such as osteoarthritis, can reduce neck and spine flexibility, making airway management difficult.
Breathing—loss of respiratory resilience means loss of hypoxic reserve and potential hypoventilation with oxygen administration; oxygen therapy is still needed but requires closer monitoring in recognition of this. Older people are more at risk of respiratory failure because of the increased work of breathing.
Circulation—reduction in cardiopulmonary reserve means that there is increased risk of fluid overload when administering intravenous fluids (particularly colloids), requiring closer monitoring. Normal heart rate and blood pressure are not a guarantee of normal cardiac output and use of beta-blockers and antihypertensive agents can mask the signs of deterioration. Blood loss from the fracture site can vary from a few millilitres for an undisplaced intracapsular fracture to over a litre for a multi-fragment or subtrochanteric fracture. All patients should have intravenous saline from the time of presentation, with the rate of infusion adjusted according to the estimated blood loss and degree of dehydration.
Disability—prolonged inactivity and disuse limits ultimate functional outcome and impacts on survival.
Exposure—skin and connective tissue undergo extensive changes with ageing, resulting in diminished thermoregulation, increased risk of infection, poor wound healing and increased susceptibility to hypothermia.

A full and comprehensive history should include relevant comorbidities and medication history and previous functional ability as well as personal and social history. Many older people, with and without cognitive impairment, are unable to provide an accurate history, so the history should also be sought from a relative,

caregiver or general practitioner [8]. Patients' skin should also be thoroughly examined to identify skin problems and potential skin breakdown. To prevent pressure injuries, patients should be transferred to a bed with a pressure-relieving/redistributing mattress as soon as possible (Chap. 7).

5.4 Hip Fracture Diagnosis and Surgery

A hip fracture is diagnosed by the symptoms and verified with X-rays [9]; these may be supplemented with MRI or CT to establish diagnosis. Most hip fractures occur in one of two locations; at the femoral neck or in the intertrochanteric region. The location of the fracture and the degree of displacement or impaction help determine the best treatment (Fig. 5.1). In nearly all cases, surgery is the treatment of choice as this is the most effective way to manage pain and stabilise the fracture so that the patient can remobilise as soon as possible.

Femoral neck fracture: This occurs in the neck region of the femur in the intracapsular region (within the hip joint capsule). The blood supply to this area means that, if displaced, this type of fracture may disrupt the blood supply to the femoral head, causing it to collapse due to necrosis. Hence, if the fracture is displaced, it is usually

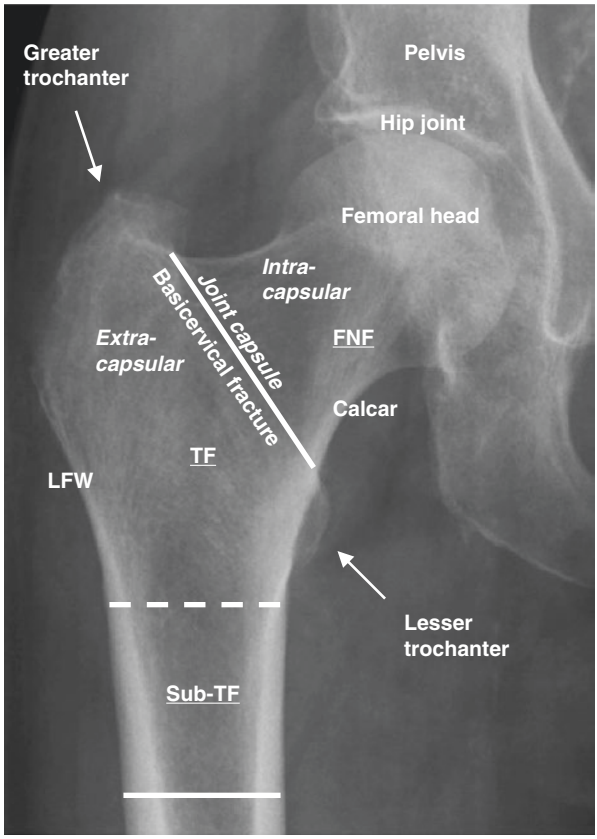
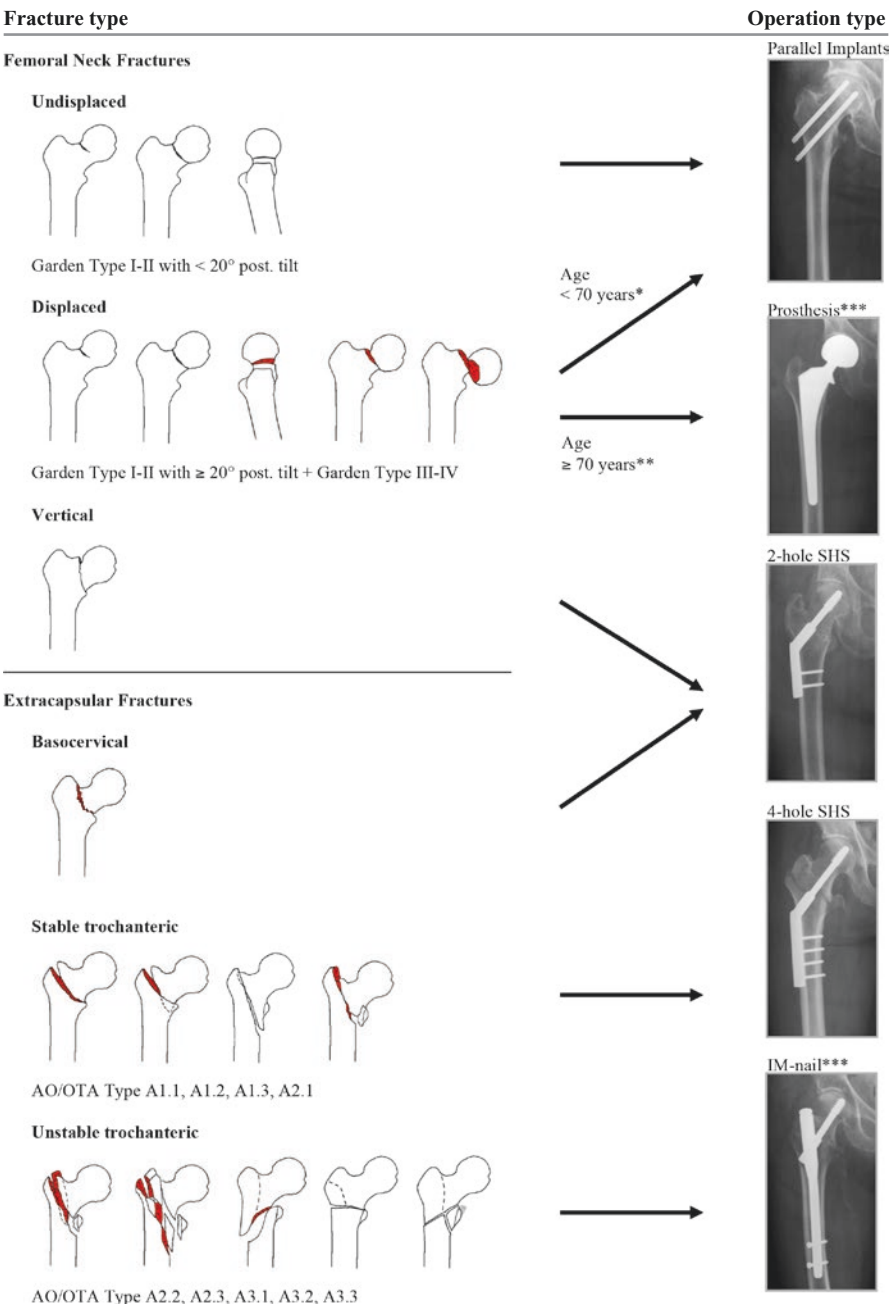


Fig. 5.1 Anteroposterior radiograph of the right side of the proximal femur showing anatomy and fracture positions. *FNF* femoral neck fracture; *TF* trochanteric fracture; *Sub-TF* subtrochanteric fracture; *LFW* lateral femoral wall (From Palm 2017 [4] with permission)



*Prosthesis, if not fully reducible on traction table. **Femoral head removal, if no pre-fracture mobility. ***Mandatory supervision of junior residents. SHS: Sliding hips screw. IM-nail: Intramedullary nail.

Fig. 5.2 How hip fracture surgery decisions are made: an algorithm for hip fracture surgery (Reproduced with permission from *Acta Orthop*)

managed with hemi-arthroplasty. Undisplaced fractures are managed with parallel implants.

Intertrochanteric hip fracture: An intertrochanteric hip fracture occurs in the upper 8–12 cm of the femoral shaft in the region between the lesser and greater trochanters. As an extracapsular fracture (outside the joint capsule), the blood supply is less likely to be disrupted, so internal fixation can be performed with nails, screws, and/or plates (see Figs. 5.1 and 5.2).

Caring for patients following hip fracture is an everyday event for care staff, but, for the patient, it is a life-changing event with severe and frightening consequences [10, 11]. Although management usually follows standardised guidelines, each person needs holistic and individual care. The aim of preoperative care is to prepare the patient for surgery in a manner that avoids the development of complications of immobility and surgery.

5.5 Pain Management

A hip fracture is very painful, but good pain management is a frequently ignored aspect of care and pain may contribute to worse outcomes. One significant reason for inadequate analgesia is poor assessment, particularly in those who are unable to speak [12]. Comorbidities and polypharmacy must be considered and pain management in those with cognitive decline is challenging because of communication difficulties. Good collaboration among the orthogeriatric team is essential for achieving good pain management, particularly so that mobilisation can take place soon after surgery.

Acute pain should be continuously assessed at the time of presentation and then regularly throughout the care pathway so that effective pain management can be implemented. Every nurse should undertake frequent, accurate pain assessment and administer prescribed analgesia, observing its impact and any side effects and reporting these to the MDT. Administration of nerve blocks preoperatively for patients with hip fracture is becoming increasingly common as they minimise the need for opiates, which have multiple risk factors in older frail patients and have been shown to have a significant positive effect on the pain experience [13]. Advanced and specialist nurses increasingly have a role in the administration of nerve blocks both in the ED and in-patient units.

Frequent pain assessment is the foundation for effective pain management, including using an evidence-based tool to conduct an admission interview and a screen of health records to detect pre-existing painful conditions. An initial assessment usually includes location of pain(s), pain descriptors/characteristics of both new acute and existing persistent pain, pain intensity rating at rest and during activity and pain management history (current and past and both pharmacological and non-pharmacological strategies, their relative effectiveness, and any adverse effects experienced by the patient). Common instruments used for pain assessment are the verbal rating scale (VRS) and the visual analogue scale (VAS) for patients with cognitive decline. Older people are often reluctant to acknowledge and report pain.

Therefore, nurses should be alert to signs of the possibility of pain in older people and observe for behavioral and autonomic signs of pain.

Pain should be assessed:

- Immediately upon presentation
- Within 30 min of administering initial analgesia
- Hourly until settled on the ward
- Regularly as part of routine nursing observations throughout admission.

Immediate analgesia should be offered to all patients presenting with suspected hip fracture, including those with cognitive impairment. The choice and dose of analgesia should be age-appropriate, with close monitoring for associated side effects. Analgesia should be sufficient to allow movements necessary for investigations (indicated by ability to tolerate passive external rotation of the leg) and for nursing care and rehabilitation. Paracetamol can be offered every 6 h unless contraindicated with additional opioids if paracetamol alone does not provide sufficient pain relief, using caution if considering using nonsteroidal anti-inflammatory drugs which are often contraindicated in older people. Non-pharmacological therapies are also an integral part of the treatment plan and a variety of options have been shown to be effective individually or in combination with appropriate medications [1]. Selecting strategies that the patient believes in will enhance the effectiveness. Recommended therapies include, but are not limited to:

- Applying ice packs to the hip for 15 min at a time
- Warm blankets and gentle massage
- Cognitive-behavioral strategies: breathing exercises, relaxation therapy, humor, music therapy and socialization/distraction
- Reposition regularly with supportive pillows
- Use an interdisciplinary approach: occupational therapists may provide custom seating, splints or adaptive devices; physiotherapists will assist in individual mobility, exercise and strengthening programs
- Physical activity to improve range of motion, mobility and strength.

Multimodal analgesia can be used to maximise the positive effect of the selected medications while at the same time limiting the associated adverse effects [14]. Older people are more susceptible to adverse medication reactions. However, analgesics can be used safely and effectively when age-related differences in absorption and distributions of these medications, as well as individual risk factors, are considered [12].

Opioid analgesia is a key component in managing hip fracture pain, but there remains wide variability in individual need; opioid requirements decrease with ageing and side effects can impede mobility, impair cognition and interfere with recovery. Other medications such as sedatives, antiemetics and neuroleptics may increase opioid sedation and adverse effects need to be considered when dosing and titrating opioids. It is essential to anticipate and monitor common side effects such as

sedation, constipation, nausea and vomiting and instigate preventive treatment as appropriate [15]. Older people have increased risk of respiratory depression with opioids, so regularly monitoring sedation levels is recommended.

Turning the patient with a hip fracture onto the affected side should be avoided until it has been surgically fixed; gently "tipping" the patient may be unavoidable when performing care and checking the skin on the patient's back. Pillows should be used between the thighs and knees to help to manage pain and adduction or rotation of the affected leg should be avoided. Changing the patient's position should always be performed by two experienced nurses using good manual handling practice.

5.6 Postoperative Care

Mobilising the patient soon after surgery has proven to be beneficial in prevention of the complications of mobility and in assisting recovery (Chap. 6). Following surgery, it should be standard practice to sit the patient out of bed and begin to stand them on the day after surgery, providing this is not medically contraindicated. Progress thereafter varies considerably depending on the individual patient and the type of fracture or surgery. Patients with extracapsular fractures tend to take longer than those with intracapsular fractures [9]. Initially, patients may be afraid of weight bearing on the operated leg and should be motivated by the care team, bearing in mind the need for effective pain management.

5.6.1 Pain

Most patients have constant pain in the days following surgery which worsens when they move, so they want to lie still to avoid pain, increasing the risk of immobility. The same principles of pain assessment and pain management discussed earlier apply in the postoperative period. If pain is poorly controlled, mobilisation will be delayed, increasing the risk of the complications of prolonged immobility and leading to increased dependency and associated rise in the risk of delirium [16]. The highly variable nature of pain and an individual's response to it make accurate assessment a central aspect of nursing care to facilitate individualised pain management and monitoring. Many studies have shown that cognitively impaired and acutely confused patients receive less analgesia than their unimpaired counterparts. To help staff understand the individual needs of a person with dementia, the use of an assessment tool to such as the "this is me" tool (Alzheimer's Society (UK) https://www.alzheimers.org.uk/) encourages relatives and carers to share individual information, characteristics and behaviour that enable staff to better understand pain experience and needs. Pain assessment, evaluation, reassessment and appropriate administration of analgesia should be central to routine care.

5.7 Fundamental Nursing Care

Maintaining mobility, energy and participation in self-care during an older person's hospital stay can maintain their independence, reduce the likelihood of falls and fall-related injuries and minimise loss of confidence due to fear of falling (Chap. 3). The underlying principle of quality of care is empathy, a complex multidimensional aspect of the therapeutic relationship involving the ability to understand the needs, meanings, fears, priorities and perspectives of patients [17]. Interaction between the caregiver and a patient with cognitive decline can be a source of stress, particularly if the cognitive impairment (or dementia) sufferer resists the efforts of the caregiver (Chap. 9). Attending to comfort and hygiene is fundamental and includes, for example, acknowledging that patients often feel extreme hunger and thirst and a dry mouth, so effective and frequent mouth care is essential. Many other aspects of fundamental nursing care during the perioperative period are covered in other chapters including:

Acute delirium—the nursing team is most likely to recognise the signs of delirium (Chap. 9).

Pressure injury prevention—pressure injuries are serious complications of immobility, hospitalisation and surgery and can affect up to one third of hip fracture patients [9] (Chap. 7).

Hydration, nutrition, and constipation—fluid management in older people can be difficult as they may self-regulate fluid intake to control incontinence or urinary frequency and to manage difficulties in accessing toilet facilities. Close monitoring of fluid balance is an essential aspect of nursing care to prevent or identify renal injury and patients' acceptance of fluids and nutritional supplement drinks is often poor. Nutrition is linked to all recovery outcomes and is the responsibility of the whole team, but the nursing team is central to adequate dietary intake because of their 24-h presence (Chap. 8).

Constipation—this can be acute or chronic and is a significant and common complication for patients following fracture and during periods of ill health and immobility. Prevention should be considered early in the care pathway; this should involve:

- Regular assessment of bowel function including frequency and consistency of defecation
- Providing and encouraging a fibre-rich but palatable diet
- Careful but early use of prescribed aperients.

Nurses should also educate patients about how to diminish aperients after discharge according to their changed mobility, regained privacy and, eventually, regained appetite.

Healthcare-associated infection—prevention, recognition and management are the responsibility of the whole medical team but are central to 24-h nursing care that

often includes coordination of care provided by other team members. Nurses in leadership roles can be instrumental in ensuring adherence of staff to infection prevention guidelines. Prevention of pulmonary infections, urinary tract infections and thromboembolism is also important in perioperative care.

Secondary fracture prevention—an important aspect of preparing the patient for discharge is considering the secondary prevention of the fracture. This is considered in detail in Chaps. 1 and 3 and should be a focus during the entire of the patient's stay in hospital. This includes referral for diagnosis and treatment of osteoporosis and assessment and prevention of falls risk.

5.8 Preparation for Discharge

Discharge planning should be a coordinated effort between the patient, the patient's family, the multidisciplinary team and staff in the destination setting, if the patient is to be discharged to another care facility (Chap. 10). This process should begin as soon as possible following admission. Education of the patient and family or other carers is an important aspect of preparing for discharge. This can be a challenge for healthcare providers because of decreasing lengths of stay and the need to deliver increasingly complex information, so providing patients with alternative ways of receiving information is valuable. The responsibility for the patient's care after discharge from the hospital is often delegated to the patient and their family along with the general practitioner and, sometimes, community care staff. The patient and their caregivers must be able to understand the discharge instructions so that they can recall aftercare instructions and recognise that the information they require for their post-discharge care can be found in their instructions. Providing patients with an information booklet or automated pictographic illustration of discharge instructions have been proven valuable [18–20]. There are several reasons for supporting oral information or education: the older person's visual clarity and auditory acuity decreases, making it difficult for them to receive information and poor lighting, noise levels and room temperatures can inhibit the learning process. Managing multiple messages can be difficult for older people; their personal perception of the severity of their injury and surgery can be significant and pain will limit their ability to receive and understand information. Anticipation, anxiety and fear all contribute to diminished reception of knowledge and fear and preconceived notion of the consequences of acquiring a hip fracture have also been reported to block patients' ability to receive information [6]. These factors need to be taken into consideration when preparing the patient for discharge.

5.9 Summary of Key Points

- The care of the orthogeriatric patient following hip fracture and subsequent surgery presents significant challenges for the healthcare team
- Effective evidence-based nursing care is one of the crucial factors that impact on patient outcomes following hip fracture

- Nurses caring for patients in the perioperative period need to understand different types of hip fracture and their management so that they can deliver evidence-based acute and perioperative care to patientss with hip fracture based on each person's specific needs
- Much of the pre-, peri-, and postoperative care of the patient in need of hip fracture surgery is aimed at maintaining safety and preventing and recognising the complications of the fracture and surgery
- Many aspects of this care are discussed in other chapters within this book as well as summarised here
- Even once the patient has recovered from surgery, there remains the need to comprehensively prepare them for discharge.

5.10 Suggested Further Study

Read the following two journal papers on patients' experiences of acquiring a hip fracture:

- Gesar B et al. (2017). Hip fracture; an interruption that has consequences four months later. A qualitative study. Int J Orthop Trauma Nurs, 26, 43–48. doi:https://doi.org/10.1016/j.ijotn.2017.04.002
- Jensen CM et al. (2017). "If only had I known": a qualitative study investigating a treatment of patients with a hip fracture with short time stay in hospital. Int J Qual Stud Health Well-being, *12*(1):1307061 doi:https://doi.org/10.1080/17482631.2017.1307061

Then write a reflection about what you think is important for patients in their perioperative care.

Talk with your colleagues about what you have learned and the ways you could use this to address the problems identified.

Talk with patients and relatives and other health professionals about topics concerning the patient pathway such as preoperative care and pain management. Reflect on what you learn from these discussions and make suggestions about how practice might be developed to improve satisfaction by involvement of patients and relatives in care.

Further Suggested Reading About Visual and Hearing Impairment

- Berry P, et al. (2004) Vision and hearing loss in older adults: "double trouble", Care Management Journal 5(1):35–40.
- Heine C & Browning CJ (2002) Communication and psychosocial consequences of sensory loss in older adults: overview and rehabilitation directions, Disability and Rehabilitation 24(15):763–773
- Vision Australia (2012) Working with people with vision loss. Vision Australia, Sydney.
- Saxon SV et al. (2009) Physical change and aging: a guide for helping professions, Springer: New York

Further Suggested Reading About Pain Management

- Schug A et al. (2015) Australian and New Zealand College of Anaesthetists and Faculty of Pain Medicine, Acute Pain management: scientific evidence, 4th edn http://fpm.anzca.edu.au/documents/apmse4_2015_final
- British Pain Society and British Geriatric Society (2007) Guidance on: The assessment of pain in older people http://www.bgs.org.uk/Publications/PublicationDownloads/Sep2007PainAssessment.pdf

5.11 How to Self-Assess Learning

To identify learning achieved and the need for further study, the following strategies may be helpful:

- Examine local documentation of nursing care regarding hip fracture care and other outcomes and use this to assess your own knowledge and performance. Fundamentally, nursing is a team effort, so consider this from your own individual perspective as well as that of the team.
- Seek advice and mentorship from other expert clinicians regarding the issues raised in this chapter, e.g. pain specialists, anesthetists, geriatricians and physiotherapists. Have "learning conversations" with specialists and other members of the team to keep up to date on new evidence and disseminate it to colleagues. These conversations can include any recent new practices, guidance, knowledge or evidence.
- Review indicators of good practice (e.g. complication incidence, length of stay) and regularly assess patient and carer views and satisfaction; satisfaction has been recognised as an independent indicator of nursing care quality.
- Peer review by colleagues can be used to assess individual progress and practice but should not be too formal. There should be open discussion within the team. Weekly case conferences can identify nurse-focused issues and enable the exchange of expertise.
- Collaborate with health professionals from other departments covering the patient pathway to undertake case evaluation.

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10. Zidén L et al (2010) The break remains—elderly people's experiences of a hip fracture 1 year after discharge. Disabil Rehabil 32(2):103–113
11. Ziden L et al (2008) A life-breaking event: early experiences of the consequences of a hip fracture for elderly people. Clin Rehabil 22(9):801–811
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