Advancing age can affect your patient’s surgery risks and make communication difficult. Learn what steps you can take to head off trouble at the bypass—or any other procedure.

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THERE’S NO GETTING around it: Caring for an older adult patient facing surgery is a bit trickier than caring for a younger adult. Special needs that are directly linked to age-related changes and conditions require careful consideration.

Now, I don’t want to make you nervous: If the patient’s basically healthy, chances are good that he’ll tolerate even major surgery without complications. If he’s like many older adults, however, he has one or more preexisting chronic conditions, and surgical risk is most directly related to the number, type, and effects of comorbidities. It’s very important for you to take these into account when you plan his care. For example, poor pulmonary function puts the patient at greater risk for respiratory failure during anesthesia, and he may need mechanical ventilation postoperatively. Also, poorly controlled diabetes has a negative effect on surgical wound healing.

So give your patient’s overall health greater weight than his age when you assess his readiness for surgery. Also consider how long the surgery will take—the duration of the procedure has a major impact on the amount of physiologic stress he’ll undergo. Thoracic and abdominal surgeries, which can last anywhere from 1½ to 3 hours or more, dramatically increase the mortality rate.

In this article, I’ll show you how age-related changes can influence various aspects of perioperative care. By keeping these considerations in mind, you’ll be able to effectively minimize predictable problems and optimize postoperative recovery.

HEAR ME, SEE ME
Hearing and vision loss
Many older adults rely on hearing aids and glasses to compensate for diminished hearing and sight. About a third of older adults have a significant hearing loss by age 65; half are hearing-impaired by age...
75. It’s vital for any patient facing surgery to be able to provide important information to his health care team and to clearly understand what’s being communicated to him by the team. Miscommunication has the potential to have serious adverse effects on outcomes. Reduced hearing and vision can also lead to confusion and add to anxiety, possibly provoking uncooperative behavior based on a simple misunderstanding.

If your patient uses a hearing aid, make sure it’s in place, turned on, and in working order. When talking to any patient with a
hearing deficit, face him; don’t cover your mouth or chew food or gum; speak slowly, clearly, and reasonably loudly—don’t yell; use gestures; repeat or rephrase yourself to clarify meaning; and limit background noise as much as possible.

For a patient with impaired vision, provide written information on light-colored, matte-finish paper with dark ink and large, easy-to-read print. En route to the operating room (OR), he should wear his glasses and take along his eyeglass case labeled with his name.

**LIGHTS OUT**

**Special concerns for anesthesia**

Fast-paced physiologic responses to anesthetics, like ups and downs in blood pressure and pulse rate, can tax the cardiopulmonary system. Careful selection and slow titration of anesthetics and adjuvant drugs, like analgesics and neuromuscular blockers, are musts for older adults. Also, the transition from spontaneous to controlled ventilation can lead to a significant drop in cardiac output.

In younger patients, baroreceptor reflexes compensate to stabilize blood pressure. In older adults, however, decreased baroreceptor response and increased vascular wall rigidity interfere with this compensatory mechanism, causing sharp changes in blood pressure. Intraoperatively, drugs should be titrated to maintain the blood pressure and heart rate within normal ranges to avoid myocardial ischemia and other complications.

Maintenance dose requirements for most anesthetic and analgesic drugs are lower in older adults than in younger ones because of age-related declines in organ function. Both renal and hepatic blood flow decrease with age, impairing kidney and liver function. Renal impairment prolongs elimination of many drugs, including some anesthetics and drug metabolites requiring renal clearance. Likewise, decreased liver function slows the clearance of drugs processed by the liver.

Neuromuscular blockers are given as an adjunct to general anesthesia, to facilitate endotracheal intubation and to provide skeletal muscle relaxation during surgery. They’re typically short-acting and nondepolarizing, and they act primarily by binding with cholinergic receptor sites to antagonize the action of acetylcholine. Little, if any, significant difference in clinical duration and recovery from a neuromuscular block has been observed between older and younger patients.

A regional procedure, like spinal or epidural anesthesia or a peripheral nerve block, may be a useful alternative for patients with cardiopulmonary disease because it’s associated with less myocardial depression and postoperative disorientation. However, a lumbar puncture may be complicated in older patients due to arthritic spinal deformities or degenerative disk disease. Also, complications from spinal and epidural anesthesia, such as hypotension, may be poorly tolerated by older patients. This exposes the patient to a greater risk of postoperative myocardial infarction (MI), worsening heart failure, and urinary retention. You won’t be able to reverse the effects of the anesthetics; you and your patient will simply have to wait for them to wear off.

Another anesthesia option is intravenous (I.V.) moderate (or procedural) sedation. Compared with general anesthesia, moderate sedation has far fewer cardiovascular risks. It may also have several advantages over regional techniques. For example, most medications used for I.V. moderate sedation and analgesia have short half-lives and can be reversed with agents such as flumazenil or naloxone. And, compared with regional blocks, I.V. moderate sedation doesn’t inhibit motor ability postoperatively.
IN THE LONG RUN
Taking chronic illness into account
Some 86% of older adults have at least one chronic disease; most have more than one. The tricky part is that many older patients have fewer or less obvious signs and symptoms than younger adults who have the same condition. For example, in an older adult, atypical or vague symptoms may be the only indications of worsening heart failure or an impending MI.

Let’s look at some health problems that affect perioperative nursing care, broken down by body system.

SYSTEM CHECK
Cardiovascular
Surgical outcomes can be affected by many cardiovascular disorders that become more common with aging, including dysrhythmias, conduction disturbances, hypertension, ischemic heart disease, heart failure, arteriosclerosis, and stroke.
- **Heart block** can lead to cardiac arrest during surgery. Elective surgery should be postponed until the cause of the block is determined and the condition is treated.
- **Hypertension** increases the risk of stroke, MI, and heart failure.
- If possible, surgery should be postponed at least 6 months after an **MI**. The incidence of reinfarction is 37% in patients who undergo surgery within 3 months of an MI. Because silent ischemia and infarctions are common in older adults, your patient should undergo a baseline electrocardiogram close to the time of admission.
- Assess any patient with a history of **heart failure** for shortness of breath, dyspnea on exertion, jugular vein distension, crackles, and edema.

Respiratory
Respiratory complications account for 40% of all surgical complications and 20% of surgery-related deaths. Older adults are particularly vulnerable to respiratory complications because of the decline in pulmonary function associated with aging: Vital capacity decreases 20 ml per year after age 40. Reduced chest wall elasticity results in a decrease in lung compliance and increases the work of breathing while reducing maximal minute ventilation. The net effects of these age-related changes include decreased vital capacity, tidal volume, and pulmonary reserve; increased residual volume; hypoxemia; increased risk of respiratory failure under anesthesia; aspiration; and pulmonary infection.

Older patients are more likely to need a ventilator postoperatively, especially after lengthy procedures involving the abdomen or thorax. A history of emphysema, chronic bronchitis, or asthma increases the risk of atelectasis, pneumonia, and impaired oxygen–carbon dioxide exchange.

Dazed and confused
Postoperative **confusion** occurs in 10% to 30% of older adult patients, and it may persist for several days. Confusion can stem from many physiologic causes, including metabolic and chemical imbalances, hematologic problems, infections, dehydration, hypothermia, or malnutrition (hypoaalbuminemia). Confusion worsens with sensory deficits, like poor vision and hearing, the effects of medication, and the stress of surgery.

Preexisting cognitive deficits increase the risk of postoperative **delirium**, an acute but reversible state. A delirious patient may be oriented to person, but not to time or place. He may mistake unfamiliar places and people, have disorganized thinking, and speak incoherently. Postoperative delirium affects 10% to 15% of older adult patients. It sometimes accompanies other complications and prolongs hospitalization.

Unlike delirium, **dementia** is chronic and mostly irreversible. Also unlike delirium, which has an acute onset, dementia usually develops slowly over months to years. About 10% of people older than age 65 and 40% of those older than age 85 have Alzheimer’s-type dementia. Signs of dementia include changes in behavior, personality, and judgment and increasing difficulty performing activities of daily living.

**Depression** in older adults is common and underdiagnosed. Signs and symptoms of depression include a flat affect, feelings of helplessness and apathy, changes in sleep or eating patterns, and an inability to take pleasure in previously enjoyable activities. Depression is treatable at any age, so refer a patient showing signs of depression for psychiatric evaluation and therapy.
Besides chronic pulmonary diseases, other risk factors for postoperative pulmonary complications include smoking, obesity, anesthesia lasting longer than 3 hours, high abdominal or thoracic incisions, and more than one surgery within a year.

The most lethal postoperative infection is pneumonia, which has a 27% mortality rate. To help prevent pneumonia, maintain sterility with respiratory equipment, practice good hand hygiene, and encourage the patient to regularly perform breathing exercises and incentive spirometry. If he’s on mechanical ventilation, perform meticulous oral hygiene, which has been shown to reduce the incidence of ventilator-associated pneumonia. Smokers should be advised of the benefits of quitting.

Renal
Kidney function declines with aging, so an older patient is at increased risk for fluid and electrolyte imbalances and for overdose or toxicity from drugs cleared by the kidneys. Other renal problems common among older patients include urinary incontinence or retention and urinary tract infections.

In older patients, it’s harder for the kidneys to maintain normal extracellular fluid volume and sodium homeostasis. Perioperatively, patients are at risk for dehydration and metabolic acidosis because they have inefficient renal excretion of acid. An age-related decrease in thirst perception may exacerbate the problem.

Kidneys are also vulnerable to the harmful effects of low cardiac output secondary to hypotension, hypovolemia, and hemorrhage—all possibilities during surgery. Even if renal function appears to be good preoperatively, the stressors of surgery—including anesthesia, pain, sympathetic stimulation, and drugs causing renal vasoconstriction—could worsen subclinical renal insufficiency and lead to complications. Closely monitor fluid status, aggressively treat infections, avoid nephrotoxic drugs, and adjust drug dosages as indicated based on creatinine clearance.

Central nervous system
Aging can cause short-term memory loss, which can affect how well your patient absorbs and retains information during patient teaching. He also may experience difficulties in problem-solving and information processing. Allow ample time for patient teaching, and with the patient’s permission, include family members and caregivers in teaching sessions for reinforcement.

Postoperatively, older patients are susceptible to confusion and delirium. If they’re

Giving informed consent
All mentally competent adults have the right to accept or reject treatment. Informed consent is more than just having the patient sign a form. It’s a communication process between the health care provider and the patient, where the procedure is explained, risks and benefits are discussed, and alternative measures are presented. The patient must be able to communicate with the provider and ask questions to get a better understanding of the treatment or procedure so that he can make an informed decision to proceed with or refuse treatment.

Unless incompetence has been legally established and documented, always assume that your patient is competent. A competent patient who has the capacity to make decisions for himself should be encouraged to do so. Just because a person has adult children doesn’t mean the offspring have an automatic right to make decisions for him. If, however, the patient is competent but temporarily incapacitated, a chosen health care proxy, guardian, or relative should sign on his behalf. Once the patient is alert and oriented, he should sign informed consent forms himself.

If a patient is permanently unable to give informed consent, find out if he’d made his wishes known either verbally or through a written communication, like an advance directive or living will. Determine if he’d designated power of attorney to someone who will make health care decisions for him.

What’s the appropriate next step if a competent patient refuses surgery that his health care provider believes is in his best interest? Whenever possible, initiate a dialogue with the patient, his health care providers, and, when appropriate, his family members, to address their concerns. For specific questions, the provider should be included in the discussion. The patient may be willing to accept more limited goals in exchange for less immediate risk. Regardless of the patient’s decision, be nonjudgmental and accept it as the right one for him.
also suffering from depression or age-related dementia, assessing their condition and responding appropriately can be a challenge (see Dazed and confused for more information). Keep in mind that confusion, delirium, and depression are reversible; dementia usually isn’t, although certain treatments and interventions can ease symptoms.

**STAY OUT OF DEEP TROUBLE Preventing DVT**

Just being age 40 or older is a risk factor for deep vein thrombosis (DVT). Other factors raising the risk of DVT include general anesthesia administration, surgery lasting longer than 2 hours, obesity, varicose veins, cancer, prolonged immobility or bed rest, and smoking. Many individuals over age 40 have one or more of these other predisposing factors.

Because DVT can lead to a potentially fatal pulmonary embolism, range-of-motion (ROM) exercises and early ambulation should be at the top of your postop priority list to prevent venous stasis.

For preoperative patients at increased risk of DVT, apply antiembolism stockings or a sequential compression device, which directs venous blood back toward the heart. Also, administer DVT prophylactic medication, such as unfractionated heparin, low-molecular-weight heparin, or warfarin, as ordered. Appropriate medication depends on the patient’s risk factors and the type of surgery.

**HEAD OFF DRUG-RELATED PROBLEMS**

*The medication history*

On average, older adults get 12 to 17 prescriptions in a year’s time and take 4 to 5 different medications daily. Before surgery, take a complete patient history that includes all medications, supplements, and over-the-counter products. Any of these can affect the patient’s response to surgery and postoperative recovery, so it’s important to get a full accounting.

Declines in organ function affect how the body absorbs, distributes, metabolizes, and eliminates drugs. Drugs may stay in an older adult’s system longer than in a younger adult’s, increasing the risk of adverse drug reactions, drug interactions, and toxicity.

Drug dosages should be started as low as possible and titrated to the patient’s response. Watch for possible signs of drug-related problems, such as confusion, excessive drowsiness, and changes in pulse rate and blood pressure.

**IT’S SKIN DEEP**

*The integumentary system*

As a person ages, his integumentary system becomes fragile. The dermis is thinner, and the skin is less elastic. Older adults have less collagen, muscle mass, and adipose tissue than younger adults.

All of these changes make your older patients susceptible to bruising and skin tears, infection, pressure ulcers, impaired thermoregulation, and delayed wound healing. Take care to provide adequate support to avoid shear and friction when positioning or transferring him. Provide appropriate padding and support devices, avoid using tape on skin, and place limbs and joints in neutral positions to minimize stress and pressure on joints and tissue. Sufficiently pad contracted limbs to support them in their natural, neutral position.

**STAY WARM**

*Avoiding hypothermia*

Integumentary, cardiopulmonary, thermoregulatory, and metabolic changes in older patients make them more vulnerable to hypothermia than younger adults. Hypothermia impairs renal concentrating ability, slows drug clearances, causes lactic acidosis, produces dysrhythmias, and precipitates acute delirium. It also prolongs prothrombin time and anesthetic agents’ effects.

Some older adults can’t help being thin-skinned.
Finally, a temperature decline of 2° C can increase intraoperative blood loss and the need for blood transfusion. Postoperatively, hypothermia may delay healing and increase the risk of wound infections. And, if a hypothermic patient starts to shiver, his tissue oxygen requirements could increase 200% to 500%, which increases his risk of an MI. Most younger people will shiver if their temperature drops below 97° F (36.1° C). People over age 80, however, typically don’t start to shiver until their temperature falls below 95.4° F (35.2° C).

To minimize the risk of hypothermia, cover patients with warmed forced-air blankets or blankets from a warmer, infuse only warm fluids and blood, and provide heated, humidified inspired gases.

**WAKE UP!**

**The postanesthesia care unit**

Although your patient may initially be hypertensive as he emerges from anesthesia, postoperative hypotension is usually a bigger problem. Monitor his vital signs closely. Also, document fluid intake and output meticulously and watch for signs and symptoms of dehydration or fluid overload.

Compared with healthy younger patients, older adults are especially susceptible to respiratory complications during the initial postoperative recovery period. That’s because recovery from anesthesia is delayed due to slower metabolic rates and slower elimination of sedatives and anesthetics. Decreased airway reflexes and secretion clearance, an increased incidence of hiatal hernias, and age-related pulmonary changes raise the risk of regurgitation and aspiration pneumonia.

Besides protecting the patient’s airway and breathing, make pain control a top priority. Older adults are especially vulnerable to the physiologic consequences of severe pain, which may inhibit breathing, increase blood pressure, precipitate dysrhythmias, impair ambulation, and worsen confusion. Although older patients don’t experience less pain than younger ones, they may be less able to distinguish different pain intensities or report their feelings.

Unless contraindicated, opioid analgesics like morphine, acetaminophen, and short-term nonsteroidal anti-inflammatory drugs (NSAIDs) are indicated to treat postoperative pain. A word of caution: Don’t use NSAIDs if your patient has heart failure, renal insufficiency, or a history of stomach ulcers because these drugs can worsen those conditions. Also, avoid meperidine (Demerol) because its metabolites can accumulate quickly, causing central nervous system toxicity.

Administer drugs I.V. at first, then switch to oral forms when the patient can swallow safely and tolerate them. Avoid intramuscular administration: Muscle wasting in an older patient makes drug absorption unpredictable, plus intramuscular injections are painful.

Patient-controlled analgesia (PCA) may be more beneficial than scheduled analgesic administration if the patient is alert, has been properly educated on PCA use, and is physically able to press the button. Encourage him to use it. Continuous epidural analgesia is another pain management option that may be appropriate for some patients.

While your patient’s in the postanesthesia care unit, assess and document his pain level every 15 minutes using a standard pain-rating scale, and document his response to medication. To ensure consistent assessments, make sure nurses on all shifts use the same scale.
BACK ON HIS FEET

Activities of daily living

In the days following surgery, your goal is to return the patient to his usual activities of daily living. Focus your nursing care on:

- managing pain
- restoring and maintaining normal body temperature, blood pressure, and other vital signs
- providing adequate nutrition to support wound healing
- supporting the return of normal bowel and bladder function
- facilitating early ROM exercises and ambulation to prevent complications, such as atelectasis and DVT
- assessing and caring for the surgical wound
- removing invasive lines (such as I.V. catheters and indwelling urinary catheters) as soon as possible to minimize infection risks
- educating the patient and caregivers about wound care and other care points they’ll need to know when the patient returns home.

On the high road

By being aware of older adults’ special needs and addressing them early and appropriately, you can help avoid postsurgical complications and smooth the way for your patients to achieve an optimal recovery.

Learn more about it


CE Connection

INSTRUCTIONS

Age-smart care: Preventing perioperative complications in older adults

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