

MAIMONIDES MEDICAL CENTER

DEPARTMENT OF ANESTHESIOLOGY

GERIATRIC ROTATION MANUAL

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INTRODUCTION

The elderly undergo almost 40% of surgical procedures, including elective and emergency surgery (approximately 8 million operations per year). To appropriately care for these patients it is necessary to understand the natural physiologic changes of aging, the comorbidities that are found in the elderly, and the effects these comorbidities have on the aging process. The elderly are also more likely to suffer a wide range of postoperative complications. To deal with this age group, the provision of high-quality care is a critical issue during surgery, as well as during the postoperative period. In order to provide this quality care, we need to understand not only the medical and social issues related to these patients, but also the normal age-associated physiologic changes (structural and functional) in different organs and tissues.

To respond to this need for better geriatric training, the American Geriatric Society (AGS) established the Geriatrics for Specialists Project in 1994. The Department of Anesthesiology at Maimonides Medical Center is proud to have been selected by the Geriatric Education for Specialty Residents (GESR) program. To achieve the requirements of the GESR program, the Department of Anesthesia has initiated a Geriatric Expansion Project entitled “**Geriatrics Education Research Initiative and Anesthesia Training of Residents In Core Curriculum**” (GERIATRICC), which will enable our residents to learn the various aspects of geriatric anesthesia care. All residents are trained how to be safe, competent, and clinically excellent anesthesia consultants.

Additionally, our residents are exposed to an array of geriatric patients during all 3 years of the residency program. Furthermore, there will be a specific geriatric rotation during their residency, during which they will be actively involved in learning assessment of cognitive function, the various cognitive disorders, and how to minimize the impact of anesthetic management on cognitive function. Although most of the various organ system changes in the elderly are well understood, cognitive function assessment and the disorders of cognitive function are not commonly addressed. Hence, during this rotation, the primary focus is on cognitive function in the elderly. Dr. Jennifer Breznay, our geriatrician co-investigator, will be actively involved in educating residents regarding the same.

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GOALS AND OBJECTIVES FOR RESIDENTS DURING THE GERIATRIC ROTATION

By the end of the rotation the resident is expected to be able to:

1. Assess cognitive function in elderly patients
2. List the various higher functions of the brain
3. Evaluate cognitive function using various measurement tools such as the Mini-Cog test and Confusion Assessment Method (CAM)
4. Define dementia and differentiate it from the decline in cognitive function that occurs as a part of normal aging
5. Name the different types of dementia
6. Diagnose delirium in an acute setting and initiate prompt therapy
7. Treat and prevent delirium in the elderly “at-risk” patient by using nonpharmacologic measures such as focusing on hydration; re-orientation (introduce yourself, orient patient to time, place, and person), sleep/wake cycle (lights off at night and on during the day); mobilization (wheelchair, walker); and preventing sensory deprivation (make sure patients have their hearing aids, eyeglasses, dentures)
8. Assess elderly patients for all the above-mentioned cognitive function disorders
9. Develop techniques of anesthetic management that will minimize the effects of anesthesia on cognitive function
10. Follow patients postoperatively in the PACU, on the unit 24 hours and 48 hours postoperatively, and on POD3 and POD4 if the patient is still available for assessment of changes in cognitive function

DESCRIPTION OF THE ROTATION

The geriatric rotation is incorporated into the annual rotation schedule and is offered for the CA-3 residents. The length of the rotation is 4 weeks. The resident who is assigned to this rotation will identify the geriatric patients (age > 70 years) from the OR schedule who are undergoing major elective procedures and will assess the patients preoperatively.

A detailed assessment of the patient’s cognitive function is done using the appropriate cognitive function assessment tools. If the patient is same-day admission, the assessment will be done on the morning of the surgery. The same resident will be involved in the intraoperative and postoperative care of the patient. Postoperative cognitive function assessment will be performed on POD1 (24 hours s/p surgery) and as feasible during the following times: post-op in the PACU (>2 hours after the end of anesthesia) or any time after PACU discharge on the DOS, and POD2 (48 hours s/p surgery). In addition, the resident will be involved in teaching the cognitive function assessment to the preadmission testing (PAT) personnel for their preoperative evaluation of the patients during the PAT visit. The resident/s completing the patient

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evaluations will review them with the geriatrician partner, Dr. Jennifer Breznay, on a weekly basis.

This residents' geriatric rotation experience will be used as a pilot project and the plan is to formulate a geriatric research project, "Factors Influencing Cognitive Function Impairment in Geriatric Patients Perioperatively."

ASSESSMENT OF COGNITIVE FUNCTION

Inclusion Criteria

- **Age 70 years or older**
- Any elective major surgery, including cardiac and carotid artery surgery, under general or regional anesthesia, except as noted below
- ASA physical status I–III
- Capable of giving consent
- Literate in English

Exclusion Criteria

- Intracranial surgery
- Emergency surgery
- In ICU
- Severe visual or auditory disorder/handicap
- Unable to speak English
- Parkinson's disease
- Presence of a major psychiatric condition such as bipolar disorder, uncontrolled major depression, or schizophrenia; dementia or another clinically significant CNS disorder; or status symptomatic post-stroke, when the patient's condition is *not* well controlled by medication and it is evident that the patient cannot comply with the instructions to comply with the testing

Testing Time Points

- **Pre-op:** Mini-Cog
- **POD1:** CAM
- **PACU** (>2 hours after the end of anesthesia)/**Post-op** (any time on the DOS): CAM
- **POD2:** CAM testing as *feasible*
- If a patient is assessed as having delirium and it is possible to do so, the resident should continue postoperative evaluations

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Preoperative Testing: Mini-Cog (2-part tool to assess general cognition), to be performed preoperatively *only*

1. Short-term recall of three objects (3 points)

Name 3 objects. Tell the patient to repeat them back to you. (If the patient can't name all 3, repeat them and ask the patient to repeat them.) *Wait 3 minutes* before asking the patient to recall the objects.

The objects are: **apple, table, penny.**

Give 1 point for each correct answer *for the first try only.*

a. _____ b. _____ c. _____

2. Clock drawing test (2 points)

- a. Ask the patient to draw a clock and place 1 to 12 correctly on the clock face.
- b. Ask the patient to draw the hands at 11:20 on the clock face.

(Total scoring 0–5, <3 = abnormal)

Postoperative Testing: Confusion Assessment Method (CAM) (tool to assess delirium)

The 3 important components for assessing delirium are:

1. Detailed history
2. RN input
3. Bedside exchange/assessment

A positive CAM test requires:

1. Acute onset, duration, and severity, with fluctuation of symptoms—waxing and waning appearance (historical—speak with nurse or family members)
AND
2. Inattention: test with “months backwards from December” or “spell own name backwards” (bedside tests)
WITH EITHER
3. Disorganized thinking (hallucinations or delusions; extremely circumferential speech, difficult to follow) (historical)
AND/OR
4. Altered LOC (hypervigilant, alert, lethargic, somnolent, comatose)

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PREOPERATIVE ASSESSMENT OF MEDICAL CONDITION

Apart from the cognitive function assessment, residents are expected to be able to:

- Obtain complete medical history and physical examination
- Check whether patient is medically optimized
- Check the list of medications the patient is taking
- Check all the lab work-ups
- Obtain appropriate medical consult
 - Request additional cardiac work-up if deemed necessary, such as an echocardiogram
- Consult with attending anesthesiologist
- Evaluate the airway, inclusive for degenerative changes of the cervical spine and TMJ and for glottic narrowing
- Follow NPO guidelines

Intraoperative Checklist of Considerations for Geriatric Patients

- Avoid excessive use of sedatives, hypnotics, narcotics, and muscle relaxants
- Consider a regional anesthetic technique whenever it is appropriate
- Avoid drugs such as antihistamines and anticholinergics
- Use appropriate antibiotic prophylaxis to prevent infection
- Avoid hypoxia, hypotension, and hypoperfusion!
- Avoid dehydration
- Avoid hypothermia
- Avoid metabolic/endocrine derangements such as hypo/hyperglycemia, hyponatremia, hypocalcemia, hypothyroidism, and uremia

Postoperative Checklist of Considerations for Geriatric Patients

- Ensure adequate pain control: multimodal analgesia
- Follow all the recommendations mentioned for intraoperative care of the patient
- Make orientation efforts, for example:
 - Address the patient by name
 - Mention the time, day, and the date
 - Make sure clocks and calendars are available
 - Maintain normal sleep-wake cycle (eliminate vital sign measurements in the middle of the night; turn lights off during nighttime)
- Avoid chemical and physical restraints
- Remove unnecessary bladder catheters and IV lines
- Ensure the use of assistive devices (e.g., hearing aids, eyeglasses, walkers)
- Mobilize patients as early as possible

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When cognitive function is assessed on the unit during postoperative periods, ensure the postoperative checklist is continued on the unit/ICU. (Make efforts to inform nursing staff of the value of continuing these interventions.)

WEEKLY CASE EVALUATIONS REVIEW

The resident assigned to the geriatric rotation will be responsible to attend a weekly meeting with the geriatrician partner, Dr. Jennifer Breznay (cell #718-840-9785, pager #6068), and all available GSR team members to review and discuss the results of the cognitive function assessments performed. These meetings, unless otherwise specified, will occur every **Tuesday afternoon at 3:00 PM** in the G4 Anesthesia Lounge (outside Dr. Gupta's office).

Recorded minutes of the meetings must be taken. If the resident will be post-call on Tuesday, it is the resident's responsibility to contact Dr. Jennifer Breznay and arrange to meet on Tuesday morning prior to leaving the hospital. Drs. Tyagaraj, Feierman, and Gupta should be notified when this is to occur.

SUMMARY

Through implementation of the geriatric rotation in the Department of Anesthesiology at Maimonides Medical Center, all residents will gain experience in the competent management of uncomplicated and complex geriatric surgical cases. Exposure will be based on their level of comfort and proficiency. They will learn to perform specific techniques of anesthesia—general anesthesia versus regional or combined—for a particular case based on the risks and benefits of the same for that patient. During this rotation residents will be provided with didactic lectures and supplemental material to enhance the knowledge base, and they will actively take part in an organized approach to cognitive function assessment and multidisciplinary case discussions.

The vision for the future includes active involvement of residents to educate other health care team members regarding cognitive dysfunction in the elderly, how to perform the Mini-Cog and CAM tests, and a multimodal approach for efficient management of these patients. These health care team members may include nurse practitioners in the preadmission testing area, staff nurses in the PACU and other postsurgical areas, and other surgical staff.

It is expected that after finishing 3 years of the residency training program, all residents will be clinically competent consultants. This will allow them to provide safe and compassionate anesthesia care and avoid perioperative complications for this set of the geriatric population.