PHARMACOLOGIC CONSIDERATIONS IN PHYSICAL AND REHABILITATION MEDICINE

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Corpus Christi Rehabilitation Hospital
Objectives:

1. To be able to define physiatry and its philosophy.

2. Be able to explain the transformation of rehabilitation and how it has come to be set apart from medical surgical units. Identify the 10 most common inpatient rehab diagnosis that characterize the inpatient rehabilitation population.

3. Be able to define interdisciplinary team approach and the interdisciplinary team conference.

4. Define the role of the pharmacist in rehabilitation; the admission, patient care management and stewardship, and the discharge.

5. Become familiar with Pharmacotherapeutic interventions used by the Physiatrist in the inpatient rehabilitation hospital.
Physical Medicine and Rehabilitation

The physiatrist diagnoses and treats physical and functional disorders.

Their main focus is management of disability through teaching and facilitating and by encouraging patients to actively manage the sequela of their disability.

The goal of the physiatrist is to guide the patient with disability to improvement of function and adjustment to disability.

They employ an interdisciplinary team approach where team member specialists collaborate by exchanging information and ideas to identify and resolve barriers to discharge home.
Physical Medicine and Rehabilitation

The origins of physical medicine can be traced back to the central tradition and applying physical agents like heat, cold, and water for medical benefit.

In 1919 following World War I, the principles of medical rehabilitation formulated during the treatment of soldiers.

PMR became a single field in the 1920s and 30s spurred on by World War II.

PMR became officially sanctioned as a specialty by the American Board of medical specialties in 1947.

Board qualification for PMR requires 1 year of medical surgical or pediatric internship followed by 3 years of PMR residency.

Fellowships and PMR generally 1 year duration and include pediatrics, head injury, spinal cord injury, sports medicine, electrodiagnosis, and research.

Board certification require successful completion of both written and oral examination.
The formation of rehabilitation

- After its formation in 1977 the healthcare financing administration enlisted the American Academy of Physical Medicine and Rehabilitation and other organizations to form a committee to identify criteria for inpatient rehabilitation facilities (IRF) or units that would distinguish them from medical-surgical units.
Formation of Rehabilitation

- The committee presented 3 criteria for admission to rehabilitation facility;

- medical stability to participate in rehabilitation;

- reasonable expectation of the patient would experience significant functional improvement in the reasonable period of time;

- and the patient was expected to be able to tolerate and participate in 3 hours of daily therapy.

3 criteria for admission to IRF
Formation of Rehabilitation

The committee identified the 10 most common inpatient rehabilitation diagnosis is for admission to the rehab unit:

1. Stroke,
2. Congenital deformity,
3. Spinal cord injury,
4. Amputation,
5. Major multiple trauma,
6. Fracture of the femur,
7. Brain injury,
8. Polyarthritis,
9. Neurologic disorders, and
Payment system change

- Reimbursement to hospitals was initially set up as a per diem
- However this lead to exceedingly high cost to Medicare
- In 1985 Medicare implemented a prospective payment system based on diagnostic related groups (PPS-DRG)
- Hospitals would be paid a lump some for particular diagnosis based on national average length of stay; shorter lengths of stay equaled more money and longer lengths of stay less money
- However, Medicare exempted Physical Medicine and Rehabilitation, Pediatrics and Psychiatry from the PPS-DRG
The IRF Boom

• Because they did not follow medical–surgical and patient care models PMR was exempted
• As a result to manage their length of stay IRF units began to appear
• While the number of acute IRF hospital beds doubled in 5 years
• In a 15-year period the number of IRF grew from 452 to 1048
Controlling costs

- To differentiated medical–surgical units from IRF, Medicare created the 10 most common inpatient rehabilitation diagnosis
- Medicare created the 75% rule.
  - The intent was to ensure that 75% of the patients admitted to an IRF had a qualifying diagnosis in each fiscal year
- But the 75% rule was not strictly followed and as a result the total cost for rehabilitation by the year 2000 was almost $8 billion ranking rehabilitation 11 among Medicare expenses by diagnosis.
- Medicare changed to Center for Medicare Medicaid services (CMS) And began to enforce the 75% Rule
- CMS issued a final ruling regarding IRF in 2004 to 75% rule would be enforced but would be face down over the course of 4 years, additionally joint replacements would only be counted towards the HCFA 10 if there were bilateral, if the patient was extremely obese with a body mass index greater than 50, or if the patient was 85 years of age or older.
Rapid reduction in IRF beds

• In 2006 the number of IRF discharges decreased to 412,000 from 510,000 in 2004

• In 2007 George W. Bush signed a law to freeze the 75% rule at 60%, but included additional requirements
  • Physician would have to document a preadmission screening and the post admission evaluation, add a functional note at least 3 times per week, an interdisciplinary plan of care would have to be completed within 4 days, and they would eliminate 3 to 10-day rehabilitation trial period.

• Spending doubled for post acute care services from 27 billion and 2001 to 59,000,000,000 in 2016.

• Total Medicare expenditures in 2020 is expected to exceed $1 trillion
A more complicated patient

- As a result of these changes and with improvement in technology, IRFs were caring for complex medical-surgical patients who truly needed inpatient rehab facilities but were not part of the HCFA–10
- Examples would include post CABG patient's, patients who have had transplants of lung, heart, liver and cancer patients. The rule has not changed.
- The increase in complexity of the rehab patient places a greater risk for complications on the patient during rehabilitation thus making each discipline more important in the overall planning of the patients rehab stay and especially for education, stewardship, and appropriateness of treatments and diagnostics.
Interdisciplinary Team

PMR practice uses an interdisciplinary team approach in the management of patients on the rehabilitation unit to facilitate communication between team members participating in the care of the patient.

By collaborating on areas of concern during a patient’s stay, the team sets and confirms patient-oriented goals, identifies barriers to those goals, and works to provide evaluations and intervention recommendations to ensure a safe discharge to home.

The patient’s diagnosis and functional ability dictates the degree of interdisciplinary involvement and the specific team members who comprise the team.
# The team members at CCRH

<table>
<thead>
<tr>
<th>Core</th>
<th>Additional</th>
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<tbody>
<tr>
<td>Physiatrist,</td>
<td>Prosthetist</td>
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<tr>
<td>physical therapist,</td>
<td>Orthotist</td>
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<tr>
<td>occupational therapist,</td>
<td>Recreational therapist</td>
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<td>speech therapist,</td>
<td>Social worker</td>
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<tr>
<td>dietician,</td>
<td>Vocational counselor,</td>
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<td>rehab nurse,</td>
<td>Child life specialist,</td>
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<td>case manager.</td>
<td>Animal assisted therapy specialist,</td>
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<td>Chaplain,</td>
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<td>Rehabilitation dentist,</td>
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<td>Audiologist</td>
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The Physiatrist

- Assesses the patient’s medical and functional status upon admission
- Identifies the admitting diagnosis
- Manages medical care
- Orders therapies
- Coordinates rehabilitation efforts
The Physical Therapist

• Assesses patients medical and functional status upon admission with emphasis on gross motor function
• Evaluates gait, transfers and bed mobility and trains patient in mobility and use of adaptive equipment
• Provides exercise to focus improvement on area of weakness, change in ROM, endurance, strength and balance
• Evaluates patient for potential benefit from modalities like heat, cold, electrical stimulation, traction, hydrotherapy, and bracing
The Occupational Therapist

• Assesses patients medical and functional status upon admission with emphasis on gross motor function
• Evaluates gait, transfers and bed mobility and trains patient in mobility and use of adaptive equipment
• Provides exercise to focus improvement on area of weakness, change in ROM, endurance, strength and balance
• Evaluates patient for potential benefit from modalities like heat, cold, electrical stimulation, traction, hydrotherapy, and bracing
The speech therapist

- Assesses patients medical and functional status upon admission with emphasis on assessment of cognition, communication, and swallow
- Directly evaluates swallow at the bedside and makes recommendation for MBSS
- Provides exercise to focus improvement on area of weakness, change in ROM, works on Cognitive function and reasoning, and swallow strategies and diet consistency recommendations
- Evaluates patient for potential benefit from modalities like electric stimulation, Passy-Muir valve training
The dietitian

- Evaluates patient nutritional status, intake, diet appropriateness of diet recommendation for caloric need, weight assessment and BMI and education
Rehabilitation nurse

• Assessments patient medical and functional status with emphasis on mobility and ADLs including bed mobility, functional transfers, gait; nutritional status and intake; bowel and bladder function; medication education and compliance; vital signs and fall score; wounds, pressure sore prevention; fall prevention; and pain management
The respiratory therapist

• Assess his pulmonary/respiratory function and effect on functional status; provide treatments and ongoing oxygen needs; Assist in the management of CPAP, BiPAP; and assist with trach management and decannulation when appropriate
The social worker

- Oversees the care of the patient on the unit providing information about home status, equipment, family support and insurance coverage, and makes all arrangements for discharge planning including follow up appts, home setting
The pharmacist

• Provides an assessment of the current medications and ensures appropriate reconciliation upon admission to the hospital;

• Assesses current medications with emphasis on antibiotics, blood thinners for DVT prophylaxis and stroke prophylaxis; and potential complications of medication and drug interactions and allergies; stewardship of the medications and costs to the unit. Review start and stop dates on antibiotics, appropriateness and timing of antibiotic use based on cultures per stewardship guides, and reconciles discharge medications with physician and provides patient education at discharge.
Physiatric pharmacology in the IRF setting

- Patient's on the rehabilitation unit typically have a length of stay of approximately 2 weeks. During that time, making adjustments to optimize patient care during the rehab stay and at the time of discharge and education are a primary focus.

- In the clinical setting, the physician should be aware of the metabolism, route of excretion, major adverse effects associated with each drug used.

- Any adverse drug reactions or allergies or dose-related effects of medicine should be considered.

- Drug doses should be individualized according to the patient's age and weight as well as her kidney and liver function.

- Patient's must be educated regarding compliance with medications to ensure adequate therapeutic trials while on the unit.

- The pharmacist is an essential adjuvant to the physician in the setting.
Pharmacologic and nonpharmacologic agents used in the IRF

<table>
<thead>
<tr>
<th>Pharmacologic</th>
<th>Nonpharmacologic</th>
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<tr>
<td>• Analgesics,</td>
<td>• Physical modalities</td>
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analgesics
Skeletal muscle relaxers
Corticosteroids
Anticonvulsants
Psychotropic drugs
Antihistamines
Hematologic agents
Bone metabolism regulators
Cardiovascular drugs
Neuropharmacology in TBI and stroke