MDR TB CASE MANAGEMENT

LEARNING OBJECTIVES

Upon completion of this session, participants will be able to:

1. Recognize who is at higher risk for MDR TB
2. List the general principles of MDR TB treatment
3. Identify strategies for managing side effects to second-line medications
4. Identify resources for education, training, and expert consultation

INDEX OF MATERIALS

<table>
<thead>
<tr>
<th>INDEX OF MATERIALS</th>
<th>PAGES</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. MDR TB case management – slide outline</td>
<td></td>
</tr>
<tr>
<td>Presented by: Ann Raftery, RN, BSN, PHN, MSc</td>
<td>19</td>
</tr>
</tbody>
</table>

SUPPLEMENTAL MATERIAL

1. Sample school exclusion letter

ADDITIONAL REFERENCES

Nursing Case Management for Multidrug-resistant Tuberculosis

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Curry International Tuberculosis Center
University of California, San Francisco
CMCI Colorado March 2019

Objectives

At the end of this session, you should be able to:

- Describe nursing case management related to the care of a patient with multidrug-resistant tuberculosis (MDR-TB)
- Identify specific ways in which case management concepts can be applied to improve patient outcomes
- Describe resources and tools available to support case management and nursing care of the patient with MDR-TB
TB drug-resistance: A brief review

**MDR-TB:** TB isolate that is at least resistant to both rifampicin and isoniazid

**XDR-TB:** MDR + resistance to fluoroquinolone and 1 of the 3 injectable drugs (amikacin, kanamycin, capreomycin)

- **Primary drug resistance:**
  - Resistant strain isolated from a patient that has never received anti-TB drugs or treated less than 1 month before specimen collected

- **Secondary (acquired) drug resistance:**
  - Drug resistance develops during treatment (> 1 month treatment before specimen showing resistance was collected)

TB drug-resistance: A brief review (2)

- TB organisms naturally undergo mutations resulting in drug resistance at predictable rates:
  - RIF = 1 in $10^8$ organisms
  - INH, EMB, SM = 1 in $10^6$ organisms

- If a TB cavitary lesion has ~ $1 \times 10^8$ organisms
  - 100 organisms will develop INH resistance in 1 reproduction cycle

- INH and RIF = $(1 \times 10^6) \times (1 \times 10^8) = 10^{14}$
Development of Drug Resistance

1 = INH resistant, R = RIF resistant, P = PZA resistant

Development of Drug Resistance (2)
Situations that Foster the Development of Drug Resistance

- Taking medicines not as prescribed
- Malabsorption and low serum drug concentrations
- Inadequate drug regimen
- Poor quality drugs

Is nursing care for the patient with MDR-TB so different?

- Numerous toxicities and side effects to monitor for and address
- Requires a high level of attention to detail
- Psycho/social issues complicate care delivery
- Lengthy treatment to get patients through
- Much more documentation involved!
A Few Definitions

- **Case Management:**
  Previously defined in Fundamentals of TB Case Management session… all of which will be required when assigned CM for a patient with MDR-TB.

- **Patient-centered care is:**
  Healthcare and services that enables patients to exercise their rights and fulfill their responsibilities with transparency, respect and dignity, by giving due consideration to their values and needs. (WHO)

  Should be based on the patient’s needs and mutual respect between the patient and the provider (ISTC 9)

Getting the patient successfully through treatment for MDR-TB requires a TEAM effort.

The case manager must keep the “big picture” perspective **AND** pay close attention to the details!
MDR-TB Case Management Principles

- Use patient-centered care approaches – patient provides input
- Directly observed therapy (DOT) throughout treatment
- Ensure underlying medical conditions are addressed
- Take measures to prevent ongoing transmission until the patient is responding to therapy and considered non-infectious
- Optimize the patient’s nutritional status
- Use case management tools (e.g., drug-o-gram, flow sheets) to follow serial changes in drugs, bacteriology, imaging, and toxicities

MDR-TB Case Management Principles (2)

- Ensure the patient’s clinical response to treatment is regularly assessed documenting:
  - Sputum culture conversion
  - TB symptom resolution
  - Weight gain
- Ensure drug susceptibility tests (DST) are rechecked when sputum cultures remain positive or revert from negative to positive during treatment
- Ensure essential toxicity monitoring occurs and adverse effects are documented and addressed
Nursing Roles and Responsibilities Related to Case Management

Patients on Treatment for MDR-/XDR-TB

CM Duties: many and varied!

- Implement infection control measures
- Foster, administer and track adherence to treatment
- Ensure other medical and social issues are addressed
- Provide TB education to patient and family
- Monitor and document important clinical parameters such as sputum smear and culture, symptoms, and weight
- Ensure monitoring for side effects and toxicity occurs
- Assist with drug procurement
- Ensure contacts are identified, located and evaluated
Infection Control Measures

- Involves a hierarchy of control measures
- Often requires patient isolation and respiratory precautions which may extend to several months
- Respiratory protection (N95) when providing care to infectious patients
- Includes patient instruction on:
  - Cough etiquette
  - Wearing of face mask
  - Rules of isolation
  - TB transmission
  - Importance of sputum monitoring

Adherence to Treatment

- Identifying and addressing potential barriers to treatment
- Documenting doses received and/or missed
- Follow-up when treatment interruptions occur
  - Home visit or trace patient
  - Counsel — neutral/ non-judgmental language
  - Address obstacles
  - Refer for support services
Adherence to Treatment (2)

Directly Observed Therapy – considered a “best practice” strategy for MDR-TB

- Patient-centered care approach
- Mutual goal setting

Medical Conditions that Complicate MDR-TB Treatment

- HIV – coordination of care; pill burden; drug-drug interactions
- Renal disease – dose adjustments may be required in patients with impaired renal function
- Liver disease – frequency or dose adjustment of some drugs may be required
- Pregnancy – counseling; teratogenicity of drugs must be considered
- Mental Illness – may require psychiatric assessment and care; coordination for provision of TB care
Tough Social Issues to Address

- Poverty
- Homelessness
- Substance abuse
- Incarceration

Connect to supportive care services:
- Addictions Counselor
- Social Worker
- Support group

Patient Education

- Assess patient’s current knowledge of diagnosis and understanding of the plan for treatment
- Focus messages based on stage of treatment
- Use terms that the patient can understand when describing what to expect (analogies the patient can relate to)
- Be responsive to the patient’s concerns and acknowledge their willingness to cooperate
Patient Education (2)

- Most patients will be willing to continue treatment despite side effects when they:
  - Understand the benefit
  - Know symptoms will improve after first few weeks
  - Are reassured the healthcare team is doing what they can to address the problems

- **Goal** is to gain and retain the patient’s commitment to completing the full course of treatment

Required Monitoring

- **Clinical Response Monitoring**
  - Signs that the patient is improving and responding to treatment (e.g., sputum becoming smear- and culture-negative)

- **Toxicity Monitoring**
  - Assessing for side effects the patient may experience
  - Checking for abnormal lab test results (e.g., hypokalemia), or changes in vision, hearing, or cardiac function
Monitor Clinical Response to Treatment

- **Sputum smear and culture**
  - Ensure baseline sputum specimen for smear, culture and DST were obtained prior to MDR-TB treatment start
  - Instruct patient on collection of good quality specimen
  - Every 2 weeks until 2 consecutive negative cultures (culture conversion)
  - Monthly sputum specimen throughout treatment after culture conversion documented

Monitor Clinical Response to Treatment (2)

- **TB Symptoms**
  - Weekly, noting improvements or worsening of symptoms (cough, weight, fever, pain, etc.)
  - Once TB symptoms resolve, continue monthly weight check

- **Radiology** (chest X-ray)
  - Baseline at the start of treatment
  - ~ q 6 mo during treatment and when clinically indicated
  - At completion of treatment
Document and Address Side Effects

- Minor side effects are common in first few months of treatment
- Poor or delayed management of side effects can result in non-adherence to treatment
- Specific monitoring required is based on the drugs the patient is taking

Ensure Toxicity Monitoring

- Usually includes:
  - Bloodwork
  - Symptom/side effect assessment
- May also include:
  - Vision (acuity and color)
  - Hearing
  - Vestibular function
  - ECG
A word about drug levels...

Why do them?

- Optimize drug treatment by ensuring serum drug concentration is maintained within a “normal” or “therapeutic” range
  - Level too high ➔ toxicity
  - Level too low ➔ ineffective
- Assess for clearance of the drug

Factors associated with low levels

- Drug – drug interactions
- Food
- Malabsorption
- Low BMI (severe malnutrition)
Cycloserine (Cs)

- 2 hour post oral dose
- Target range = 20-30mcG/ml (some say 35mcG/ml)
- Rationale for checking level:
  - Levels above 35mcG/ml associated with seizure, acute onset depression, psychosis and suicidal ideation
- Once desired target level achieved, repeat levels not required
- Common lab error = confuse with cyclosporin and run the wrong test
  - National Jewish and U of Florida Lab are familiar with Cs

Case Management Tools

- Medical record kept up to date and well organized
- Use of case management tools to help track:
  - Changes in drugs (drug-o-gram)
  - Clinical response (drug-o-gram and/or flow sheets)
    - Sputum smears and cultures
    - Symptom resolution
    - Weight
  - Toxicities
    - Side effects
    - Bloodwork results
    - Vision, hearing, Ekg test results
Your BFF for MDR-TB care!

- And national Drug-resistant TB Treatment guidelines coming soon!

Drug-Resistant Tuberculosis
A SURVIVAL GUIDE FOR CLINICIANS
2ND EDITION

Adapted from LA County TB Control Program Drug-O-Gram
TREATMENT KEY: ⚫ = DOT; ○ = SAT

TB Case Management and Contact Investigation Intensive
March 19-22, 2019
16
Tools for Tracking Results

Laboratory Flow Sheet

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**Chemistry**

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MDR-TB Monitoring Checklist

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<th>Activity</th>
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<th>Adj day 3</th>
<th>Adj day 4</th>
<th>Adjusted daily</th>
<th>Month of Treatment</th>
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CLINICAL MONITORING

Kx, Ca, Mg++

DISP

LABORATORY MONITORING (FOOT INJURY CONDITION)

Serum Creatinine

MONITORING MEDICATIONS

Important: Monitoring recommendations may change if treatment regimen or pt status changes. A box indicates monitoring activity is recommended. Check box when activity is completed.
New Resource for TB Nursing Care!

- Reference guide so nurses can quickly:
  - Identify symptoms that may indicate a drug-related side effect;
  - Assess for severity as well as potential contributors; and
  - Intervene appropriately to:
    - minimize patient discomfort,
    - reduce side effect progression, and
    - ultimately support successful treatment completion

Post-Treatment

- Counsel and instruct patient on signs/symptoms suggesting TB relapse
  - Information to keep regarding completed treatment
  - Where to go should symptoms recur
- Clinical evaluation quarterly during year 1 and every 6 months during year 2
Summary

Did we achieve our objectives?

- What are some unique features of nursing case management for MDR-TB care?
- Name a few principles for MDR-TB case management and patient-centered care
- Name a few specific case management tools or resources available to help you in the oversight and care of a patient with MDR-TB?
CONFIDENTIAL (sample letter)

Date

Name
Address
City, Ca. zip

Dear Ms.

This is to inform you that ____________________ is suspected of having a communicable disease. This employee will be excluded from workl until it is determined by the Health Officer that s/he is free of such disease or not communicable according to Chapter 2, Section 120130 of the Health and Safety Code of the State of California which states:

“The health officer may require isolation (strict or modified) or quarantine for any case of contagious, infectious or communicable disease when such action is necessary for the protection of the public health.”

If you should have any questions, please call the Disease Control Staff at (951) 358-5107.

Sincerely,

Barbara Cole, RN, PHN, MSN
Director, Disease Control

BC:

cc: