Introducing TOCSE: A tool to bridge didactic learning to clinical application (Part 1)

Leilani B. Mercado-Asis, M.D., Ph.D., M.PH.1

Keywords: TOCSE, cholecystitis, Pathophysiology, diabetes

TARGET-ORIENTED CLINICAL SKILL ENHANCEMENT (TOCSE)

To connect didactic learning to clinical application is a challenge both for the teachers and students. The dilemma starts from— at what level must clinical learning be introduced to medical students? Should one come after another or be introduced at the same time? Nonetheless, the decision to do is critical.

Target-Oriented Clinical Skill Enhancement (TOCSE) is a teaching and learning tool that brings about the integration of basic medical sciences, such as anatomy, physiology, pathology, microbiology, and pharmacology at the clinical level. The uniqueness of the approach is:

- The primary goal is immediate relief of chief complaint to make the patient comfortable.
- Risk factors for the disease is identified first.
- Pathophysiology of the chief complaint is defined next.
- Primary disease and other diseases, if any, come last.
- Bottomline, all identified abnormalities in the patient will be prioritized and targeted to be resolved.

TOCSE can be introduced with initial application at the second-year level. It is useful in the preparation of 3rd year medical students for their 4th year tasks, foremost is writing progress notes. TOCSE table depicts a clear account of the patient’s clinical course which makes writing of discharge summary easy. Overall, TOCSE provides the following advantages and outcomes for an enjoyable teaching and learning experiences:

- Concise diagnosis and management plans is formulated based on specific data in the history and physical examination.
- Unnecessary work-up is avoided.
- Logical daily assessment of patient is achieved.
- Grading of students/trainees at any level is made easy.

HOW TO USE TOCSE

Complete History and Physical Examination: The Backbone
As in any clinical exercise writing complete history and physical examination is basic that leads to plausible diagnosis and differential diagnoses.

IDENTIFYING OF RISK FACTORS

After completion of basic data (history and physical examination), the student will consider a primary
Introducing TOCSE: A tool to bridge didactic learning to clinical application

working diagnosis and differential diagnoses. The identification of risk factors on the patient will narrow-down all possibilities.

Risk factors can be classified into intrinsic or non-modifiable (genetic/familial) and extrinsic or modifiable (environmental/lifestyle). Clinical setting with example of risk factors are, as follows:

- 45 year-old male with pneumonia – socioeconomic status, occupation, uncontrolled diabetes, significant smoking history
- 72 year-old male with stroke – age, gender, with diabetes and hypertension both uncontrolled, obesity, no physical activity
- 53 year-old female with acute cholecystitis – age, gender, obesity, fatty diet

DIAGNOSING THE CHIEF COMPLAINT

To diagnose based on the patient’s chief complaint is a clear application of learning from the basic subjects primarily physiology, pathology and anatomy. Again, the diagnosis is anchored on the data obtained from the history and physical examination. Examples of diagnosis of chief complaints are as follows:

- 45-year-old male with pneumonia presenting with difficulty of breathing

The difficulty of breathing is a compensatory increase in respiratory rate due to hypoxia brought about by inflammation in the lung parenchyma leading to inadequate oxygenation.

- 72 year-old male with stroke presenting with loss of consciousness

Loss of consciousness is a cerebral manifestation of either inadequate blood supply to the brain or compression of brain structures by probable hematoma formation with increased intracranial pressure. 53-year-old female with acute cholecystitis presenting with right upper quadrant pain

The right upper quadrant pain is a nerve reaction to an inflammatory reaction most likely in the gallbladder.

FORMULATING THE DIAGNOSIS AND THE DIFFERENTIAL DIAGNOSES

Formulating the diagnosis for the primary disease with or without differential diagnosis/es and other co-morbidities follows the usual approach, that is, based on a complete history and physical examination and identifying the salient features of the case, both subjective and objective. Table 1 shows examples of these.

Table 1. TOCSE according to salient features, diagnosis and other diseases

<table>
<thead>
<tr>
<th>Case</th>
<th>Subjective</th>
<th>Objective</th>
<th>Diagnosis</th>
<th>Other Diseases, if any</th>
</tr>
</thead>
<tbody>
<tr>
<td>45-year-old male</td>
<td>Difficulty of breathing  Cough and fever  Tachycardia  Diagnosed with diabetes but not on medications  Smoker</td>
<td>RR: 28  T: 38.5°C  Crackles on both lungs</td>
<td>Community acquired pneumonia, to consider pulmonary tuberculosis</td>
<td>Type 2 diabetes mellitus, uncontrolled</td>
</tr>
<tr>
<td>68-year-old male</td>
<td>Age  Loss of consciousness  Known diabetic  Known hypertensive  Noncompliant with anti-diabetes and anti-HPN medications  No exercise  Eats fatty diet</td>
<td>Awake  Wheelchair-bound  Not oriented to 3 spheres but follow commands  BP: 180/110  RR: 98/min  BMI: 30  Fundoscopy: (+)  hemorrhage  Weakness on left upper and lower extremities</td>
<td>Stroke due to intracerebral hemorrhage</td>
<td>Hypertensive emergency  Type 2 diabetes mellitus, uncontrolled with probable chronic complications like retinopathy. To consider also nephropathy.  Obesity</td>
</tr>
<tr>
<td>53-year female</td>
<td>Age  Gender  Right upper quadrant pain  No exercise  Loves to eat fastfoods</td>
<td>BP: 140/90  BMI: 32  Jaundice  Tenderness at the right upper quadrant</td>
<td>Acute cholecystitis</td>
<td>Hypertension  Obesity</td>
</tr>
</tbody>
</table>
Part 2 of this article will discuss and demonstrate the easy way to make daily progress notes (S-OA-P), how to write the assessment, how to formulate plans according to the assessment, how to construct the TOCSE table, and how to write the discharge summary.

Open Access This article is licensed under a Creative Commons Attribution 4.0 International License, which permits use, sharing, adaptation, distribution and reproduction in any medium or format, as long as you give appropriate credit to the original author(s) and the source, provide a link to the Creative Commons license, and indicate if changes were made. The images or other third party material in this article are included in the article’s Creative Commons license, unless indicated otherwise in a credit line to the material. If material is not included in the article’s Creative Commons license and your intended use is not permitted by statutory regulation or exceeds the permitted use, you will need to obtain permission directly from the copyright holder. To view a copy of this license, visit http://creativecommons.org/licenses/by/4.0/.