

The University of Hong Kong  
School of Nursing  
Bachelor of Nursing (Full-time)  
Programme  
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NURS2600 Nursing of Adults I

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## Learning issues 1:

### Why is it necessary to check Renal function?

Checking renal function is part of a comprehensive patient assessment and provides valuable information for treatment decisions and prognosis, including medication management, and antibiotic dosing because renal function plays a crucial role in the elimination of metabolic waste caused by medication (Sandilands et al., 2013). While the patient has atrial fibrillation and hyperlipidemia, resulting in multiple medications to manage their conditions, and renal function tests serve as an important role in medication management (Lip, 1999). It can be explained by the metabolization of medications, such as Warfarin and Zocor, in the kidneys. As a result, monitoring the renal function becomes significant in case there is impaired renal function resulting in the clearance of these medications, leading to potential drug toxicity or reduced efficacy. Besides, Chest infections often require antibiotic treatment, while checking renal function helps determine the appropriate dosage and frequency of antibiotics to ensure optimal therapeutic outcomes (Matzke et al., 2011)

## Learning Issue 2:

Based on the patient's current state, what does an elevated Creatinine Level indicate?

Creatinine is a chemical waste freely filtered and undergoes a small amount of secretion in the kidney for excretion, its level in blood can indicate the glomerular filtration rate which evaluates the kidney function (Mayo Foundation for Medical Education and Research [MFMER], 2023). While the patient's creatinine level is much higher than the reference range of 49-82 mmol/I, it indicates impaired kidney function (Syal et al., 2013).

Renal dysfunction is a sign of warning on dehydration and infection-induced sepsis. In general, hyperthermia causes dehydration by increasing fluid loss (e.g. sweating) (MFMER, 2021). Dehydration can cause waste, acids, and muscle proteins to accumulate in the body, causing kidney damage (National Kidney Foundation, 2018). Meanwhile, when the infection is not effectively controlled, the pathogens can enter the bloodstream. Once in the bloodstream, they can spread throughout the body and trigger sepsis (Stearns-Kurosawa, 2011). For sepsis, it causes a drop in blood pressure and compromises blood flow to the kidneys. Reduced blood flow to the kidneys can lead to acute kidney injury, resulting in increasing creatinine levels (Zarbock, 2014).

Learning issue 3:

Based on the patient's current state, what does crackles sound and left lower lobe consolidation means?

When using a stethoscope to auscultate the chest, one may detect aberrant lung sounds known as crackles. They can signal the presence of fluid or mucus in the airways or alveoli and are frequently characterized as fine or coarse crackling noises (Piirilä et al., 1991). Crackles may indicate a sign of pulmonary congestion or infection. For consolidation, which is the solidification of lung tissue, is generally brought on by a buildup of blood, fluid, or inflammatory exudate in the alveoli, which are the air sacs (Shebl & Paul, 2020). Consolidation can be characterized by a dull percussion sound and increased breath sounds over the afflicted area. It can be noticed in a variety of illnesses, such as pneumonia or other infections.

In conclusion, Crackles sound and left lower lobe consolidation in the setting of the patient's chest illness may point to an infection or inflammatory process affecting the lung's left lower lobe.

#### Learning issue 4:

In which circumstances do patients with AF require anticoagulant medication?

In certain situations, patients with atrial fibrillation (AF) need to take an anticoagulant medicine to lower their risk of thromboembolic events, such as stroke. The evaluation of stroke risk utilizing risk stratification scoring systems, named as CHA<sub>2</sub>DS<sub>2</sub>-VASc score, informs the decision to start anticoagulation (Kirchhof et al., 2016). Patients with AF may require anticoagulant treatment under the following conditions:

1. The history of stroke, systemic embolism, or transient1. The history of stroke, systemic embolism, or transient ischemic attack (TIA) significantly increases the risk of ischemic stroke, contributing to a weighted score of 2 points. This indicates that patients are considered to have moderate to high stroke risk and are recommended to receive anticoagulation therapy (Hindricks et al., 2021).
2. Patients with atrial fibrillation (AF) and intracranial hemorrhage (ICH), including hemorrhagic stroke, are at an extremely high risk of subsequent ischemic stroke. Recent observational studies suggest that these patients may benefit from oral anticoagulation (Hindricks et al., 2021).
3. Patients with valvular AF, which includes rheumatic mitral stenosis, artificial heart valves, or valve repair, require oral anticoagulation. Due to their elevated risk of thromboembolic events, these individuals may require more intensive anticoagulation therapy (Hindricks et al., 2021).

Congestive heart failure, hypertension, age, diabetes mellitus, history of stroke or transient ischemic attack, vascular disease, and female gender are among the variables included in this score (Hindricks et al., 2021).

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