

WORKSHOP SESSION

INTERNAL MEDICINE**WS-1****HYPERTENSIVE CRISES: AN APPROACH TO TREATMENT**Margaret Merlyn*Department of Internal Medicine, Universitas Pelita Harapan-Siloam Hospital Lippo Village, Tangerang, Indonesia*

Hypertension as a major public health problem affect 30% population over age 20, more than half of people 60-69 years of age and approximately three four of those 70 years of age. Hypertension as a huge burden of disease, increase the risk of death from stroke, heart disease and other vascular disease. In person ≥ 30 years of age higher SBP dan DBP are associated with increases risk for CVD, angina, myocardial infarction, heart failure, stroke, peripheral arterial disease and abdominal aortic aneurysm. SBP has consistently been associated with increased CVD risk after adjustment for, or within strata of, SBP. The higher the BP, the greater the chance of heart attack, heart failure, stroke and kidney disease.

Although only a small spot in the large panorama of hypertension, hypertensive crisis represent the most immediate danger to those afflicted and on the other hand show the most dramatic proof of the lifesaving potential of antihypertensive therapy. Hypertensive crises not just happen as the end result of chronic hypertension but may seen at any age, representing the manifestation of suddenly developing hypertension from such diverse causes as substance abuse, immunosuppressive drugs and human immunodeficiency virus infection. Annual all cause mortality per 100 patient was 2,6 for patient with malignant hypertension compared to 0,2 and 0,5 for the normotensive and controlled hypertensive.

A hypertensive emergency is a situation with markedly elevated BP that require immediate reduction in blood pressure with parenteral agents because of acute progressing target organ damage.

A hypertensive urgency is a situation with markedly elevated BP but without severe symptoms or progressive target organ damage, wherein the BP should be reduce within hours, often with oral agents. But on clinically daily basis, the distinction between an emergency and an urgency is often ambiguous.

It is critical that health care providers follow the standards for accurate BP measurement. Prior to labeling a person with hypertension, it is important to use an average based on ≥ 2 readings obtained on ≥ 2 occasions to estimate the individual 's level of BP. According to JNC 7 hypertensive was classified as prehypertension, stage I hypertension and stage 2 hypertension

Blood pressure classification	SBP (mmHg)	DBP (mmHg)
Normal	<120	and <80
Prehypertension	120-139	or 80-89
Stage I hypertension	140-159	or 90-99
Stage 2 hypertension	>160	or >100

The most clinical presentation of hypertensive emergencies are cerebral infarction (24,%), pulmonary edema (22,5%), hypertensive encephalopathy (16,3%) and conestive heart failure

(12%). Other symptoms include intracranial hemorrhage, aortic dissection, eclampsia, acute myocardial infarction, retinal and renal involvement.

Hypertensive emergencies and organ dysfunction

Accelerated-malignant hypertension with papilledema
Cerebrovascular conditions
 Hypertensive encephalopathy
 Atherothrombotic brain infarction with severe hypertension
 Intracerebral hemorrhage
 Subarachnoid hemorrhage
 Head trauma
Cardiac conditions
 Acute aortic dissection
 Acute left ventricular failure
 Acute or impending myocardial infarction
 After coronary bypass surgery
Renal conditions
 Acute glomerulonephritis
 Renovascular hypertension
 Renal crises from collagen-vascular diseases
 Severe hypertension after kidney transplantation
Excess circulating catecholamines
 Pheochromocytoma crisis
 Food or drug interactions with monoamine oxidase inhibitors
 Sympathomimetic drug use (cocaine)
 Rebound hypertension after sudden cessation of antihypertensive drugs
 Automatic hyperreflexia after spinal cord injury
Eclampsia
Surgical conditions
 Severe hypertension in patients requiring immediate surgery
 Postoperative hypertension
 Postoperative bleeding from vascular suture lines
Severe body burns
Severe epistaxis
Thrombotic thrombocytopenic purpura

Evaluating a patient with hypertensive crisis needs an adequate history, physical examination and few laboratory tests. The duration and severity of patients' preexisting hypertension, including the degree of blood pressure, need to be explored. History of antihypertensive therapy and compliance to take the medication, use of over-the-counter preparation such as sympathomimetic agents, and the use of drugs such as cocaine need to be evaluated. On physical examination, assess whether end-organ dysfunction is present besides information from anamnesis. Measure the BP in both supine position, standing position and in both arms. Evaluation also includes palpation of the pulse of four extremities, auscultation for bruit, cardiac murmur and ronchi.

Routine laboratory tests recommended before initiating therapy are 12-lead electrocardiogram, urinalysis, blood glucose and hematocrit, serum potassium, creatinine, calcium and a lipoprotein profile. Optional tests are measurement of urinary albumin excretion or albumin/creatinine ratio (ACR) except for those with diabetes or kidney disease where annual measurement should be made. More extensive testing for identifiable causes is not generally

indicated unless BP control is not achieved or the clinical and routine laboratory evaluation strongly suggest an identifiable secondary test.

Initial evaluation of patient with a Hypertensive emergency

History

- Prior diagnosis and treatment of hypertension
- Intake of pressor agents: street drugs, sympathomimetics
- Symptoms of cerebral, cardiac, and visual dysfunction

Physical examination

- Blood pressure
- Funduscopy
- Neurologic status
- Cardiopulmonary status
- Body fluid volume assessment
- Peripheral pulses

Laboratory evaluation

- Hematocrit and blood smear
- Urine analysis
- Automated chemistry: creatinine, glucose, electrolytes
- Plasma renin activity and aldosterone (if primary aldosteronism is suspected)
- Plasma renin activity before and 1 h after 25 mg captopril (if renovascular hypertension is suspected)
- Spot urine or plasma for metanephrine (if pheochromocytoma is suspected)
- Chest radiograph (if heart failure or aortic dissection is suspected)
- Electrocardiogram

There are clinical situations in which the BP is elevated and the patient has findings that suggest hypertension-induced organ damage wherein the findings are unrelated to the elevated BP. A less aggressive approach to lowering of the BP is indicated in such patients. In such conditions, careful examination of the patient to evaluate the underlying process is a requirement.

Condition that may mimic a Hypertensive emergency

- Acute left ventricular failure
- Uremia, particularly with volume overload
- Cerebrovascular accident
- Subarachnoid hemorrhage
- Brain tumor
- Head injury
- Epilepsy (postictal)
- Collagen diseases, particularly systemic lupus, with cerebral vasculitis
- Encephalitis
- Drug ingestion: sympathomimetics (e.g., cocaine)
- Acute intermittent porphyria
- Hypercalcemia
- Acute anxiety with hyperventilation syndrome or panic attack

The majority of patients with hypertensive emergencies require immediate reduction in BP. In patients with hypertensive encephalopathy, if the pressure is not reduced, cerebral edema will worsen and the lack of autoregulation in ischemic brain tissue may result in further increases in the volume of the ischemic tissue which may cause either acute herniation or more gradual

compression of normal brain. On the other hand, the shift to the right of the curve of cerebral autoregulation in most patient develop encephalopathy exposes them to the hazards of a fall in CBF when systemic pressure is lowered abruptly by more than approximately 25%, even though these levels are not truly hypotensive.

With encephalopathy or evidence of progressive myocardial ischemia, no more than a very few minutes should be taken to admit a patient to an intensive care unit, set up intravenous access and begin frequent monitoring of the BP. Abrupt falls in pressure should be avoided and the goal of immediate therapy should be to lower the diastolic pressure only to approximately 110 mmHg. The reduction may need to be even less if signs of tissue ischemia develop as the pressure is lowered.

Patient who found to have a very high BP but who are asymptomatic and in little danger of rapidly progressive target organ damage reffered as uncontrolled severe hypertension, not a hypertensive crises need to be evaluated by the underlying disease and do not require immediate reduction in BP. In particular, patient in a surgical recovery room or nursing home whom BP is found to be above some arbitrary danger level such as 180/110 mmHg should not automatically be given sublingual nifedipine. The proximate causes for abrupt increases in BP should be identified and managed e.g. hypoxia, pain, volume overload, a distended bladder, disturbed sleep or arthritic pain in the nursing home patient. Only if the BP remain above 18/110 mmHg after 15-30 minutes may there be need for additional antihypertensive therapy but not for rapid and precipitious reduction of BP. If the rises of BP are frequent, appropriate increases in long-term therapy may be indicated. In treating a patient with a very high BP, always treat the patient not the number.

WS-2

DIAGNOSTIC APPROACH OF ANEMIA

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Anemia is a common condition, particularly in young women and in the geriatric population, and is a significant public health problem in developing countries population. According to World Health Organization (WHO) anemia is defined as a condition in which the number of red blood cells or their oxygen-carrying capacity is insufficient to meet physiological needs. Anemia is defined by WHO as hemoglobin (hb) <12 mg/dL in women and Hb < 13 mg/dL in men. It is the most common disorder that general practitioners most frequently encounter. Anemia is rarely an isolated disease and is frequently a sign of an acquired or inherited disorder. Two fundamental questions have to be considered: What is the cause of anemia and what is the urgency for correcting the anemia, is blood transfusion needed.

Red cells are produced in the bone marrow (BM) from myeloid progenitor cells. Their production requires a good BM micro-environment and adequate substrate (including iron, vitamin B12 and folate) for hemoglobin, protein and DNA synthesis. Erythropoiesis is controlled by erythropoietin (EPO), which is synthesized by peritubular fibroblasts in the renal cortex as response to reduced oxygen tension.

Anemia may be classified based on red cell characteristics (red cell size, *chromia* and morphology): hypochromic microcytic, macrocytic normochromic, normochromic normocytic and leucoerythroblastic and micro-/macro-*angiopathic*. Based on underlying mechanism can be divided into decreased BM production (BM aplasia/infiltrate, ineffective *hematopoiesis* nutrient deficiency, and EPO insufficiency) and peripheral loss or destruction (bleeding, sequestration, hemolysis)

Patients generally present with symptoms such as increased tiredness/fatigue, dyspnoea and decreased effort tolerance. The severity symptoms depend on the degree of anemia and rate of Hb decrease. Anemia from acute blood loss or severe hemolysis are likely manifest more severely than anemia with insidious onset (weeks to months) at a given Hb level. Symptoms during early childhood and history of transfusion should remind one of possible inherited forms of anemia such as thalassemia.

Anemia occurs when the production of red blood cells (RBCs) is decreased, the destruction of RBCs is accelerated, or there is a loss of RBCs due to bleeding. In many cases, a combination of these mechanisms is present. Blood loss may result from acute or gradual, prolonged bleeding. Nutrient deficiency comprises of iron deficiency anemia, vitamin B12 deficiency, folate deficiency and generalized malnutrition. Acquired bone marrow disease consist of myelodysplastic syndrome, leukemia, infiltration of bone marrow by secondary malignancy, aplastic anemia and pure red cell aplasia. Hemolytic anemia can be divided into autoimmune hemolytic anemia and non-immune hemolytic anemia.

A detailed history should include interrogation of the presenting complaint and duration of the problem, transfusion history, dietary history including pica, travel history, change in bowel habits, bleeding, drugs history, chronic diseases, surgery history, current or recent pregnancy and family history especially in early childhood.

Systematic examination directs further investigation and may reveal the possible cause. Evaluation of skin and mucous membrane for pallor, angular stomatitis, glossitis in nutritional deficiency, koilonychia, premature greying and scleral ikteric indicates possible hemolysis or ineffective erythropoiesis. Examination of neuromuscular to find muscle weakness, headache, lack of concentration, drowsiness, tinnitus, paresthesia, peripheral

neuropathy, ataxia, and loss of vibration sense and proprioception in pernicious anemia. Evaluation of cardiovascular for hyperdynamic circulation with “flow” mur-murs and cardiac failure. Clues for infection, malignancy (lymphoma, leukemia, metastatic carcinoma): hepatosplenomegaly, lymphadenopathy, and bleeding manifestations (petechie, purpura, ecchymoses), BM failure.

A Full Blood Count, differential and reticulocyte counts with microscopic blood smear examination should be the starting point of investigations. These confirm the clinical suspicious of anemia and further examination. Local laboratory reference ranges that are age and gender specific should be used. The cutoff anemia in male <13 g/dL, female <12 g/dL and pregnancy <11 g/dL. A reticulocyte count gives an indication of the BM status for decreased activity and inappropriate response to the anemia. By using reticulocyte can differentiate between hypo-regenerative and regenerative anemia. A reticulocyte production index (RPI) provides a more accurate representation of marrow activity than an isolated reticulocyte count as it corrects for the degree of anemia and presence of immature reticulocyte in peripheral blood. The formula as follow $\% \text{reticulocyte} \times \text{patient hematocrit} / 45 / \text{reticulocyte maturation time (days)}$ in peripheral blood.

A clue in peripheral blood microscopy such as oval macrocytosis, teardrops, basophilic stippling, right shift indicated further test serum vitamin B12 and folate levels. Hypochromic and microcytosis with pencil cells direct to iron deficiency anemia. Chronic disorder of there is increased in white blood cells. Target cells direct to Hb electrophoresis/HPLC for thalassemia trait. Sickle cells can be seen in sickle cell disease and need Hb electrophoresis to confirm. Spherocytes noted in hereditary spherocytosis, and warm AIHA. Coombs test and red cell membrane analysis could help the diagnosis. Finding elliptocytes/ovalocytes should suggest hereditary elliptocytosis/ovalocytosis and confirmed with red cell membrane analysis. Autoagglutination diagnosed using further Coombs test exam. Red cell fragmentation clue to micro and macroangiopathy hemolysis depend on platelet number, and evaluation to DIC and renal function could exclude others diagnosis differential. Malaria could be seen in peripheral blood by identifying parasite species.

Bone marrow examination is appropriate if pathology is suspected for instances BM infiltration, failure, and myelodysplasia. BM aspirate for morphology assessment in cellular detail. Trepine biopsy sections makes it possible to detect pathology such as granulomata and fibrosis.

CARDIOLOGY

WS-3

HOW TO THINK LIKE A CARDIOLOGIST: CLINICAL EVALUATION AS A CORNERSTONE OF CARDIOVASCULAR CASES MANAGEMENT.

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Clinical examinations are cornerstone of medicine since the beginning. History taking and physical examination are basic skills for physicians. Technologies made everything easier and accurately confirm clinical diagnosis. Sophisticated tools suppose to help us establish a diagnosis, not to replace basic clinical skills as physicians.

Clinical judgement still holds a pivotal role whenever we talk about diagnosis and treatment in cardiology and vascular medicine. Acute coronary syndrome will need a careful-focused anamnesis and physical examination to establish the diagnosis within 10 minutes. Paroxysmal nocturnal dyspnea with elevated jugular venous pressure will be a pearl of heart failure diagnosis.

Think for the worst and expect unexpected things. To act before the complication come is the art we should learn base on scientific foundation. Patients who present earlier with acute myocardial infarction will soon or later fall to heart failure or accompanied with lethal arrhythmia. Consider the case as a whole human being as the heart will relate to kidney, brain and even psychology of the patient.

Management guideline will applied for the most case, but still need tailored approach for every case. From a mere ECG to Echocardiography or cardiac catheterization will need a careful clinical examination before executed. Even the result or interpretation of a machine will call for clinical perspectives. Clinical examination is still our priceless tools as a physician to bring the guideline from the paper to bedside.

WS-4

ST-SEGMENT ELEVATION MYOCARDIAL INFARCTION: THE ESSENTIALS

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Worldwide, ischaemic heart disease is the single most common cause of death and its frequency is increasing. The term acute myocardial infarction (AMI) should be used when there is evidence of myocardial injury (defined as an elevation of cardiac troponin values with at least one value above the 99th percentile upper reference limit) with necrosis in a clinical setting consistent with myocardial ischaemia. The mortality associated ST-segment elevation myocardial infarction (STEMI) was extremely high until the advent of reperfusion strategies and time become the most decisive factor in influencing the outcome. For the sake of timely intervention, patients experiencing persistent chest discomfort or other symptoms suggestive of ischaemia and ST-segment elevation in at least two contiguous leads are referred as STEMI without having to wait for the troponin test result. Hence, symptoms and ECG are sufficient to diagnose STEMI. Lead V_{3-4R}, V₇₋₉ should be performed whenever there is a suspicion of right and/or posterior infarction especially in those with an inferior infarct. STEMI patients receive standard acute coronary syndrome therapy such as dual antiplatelets, nitrates, morphine, statins, anticoagulants, and oxygen if needed. The most important is, however, the tide turning reperfusion therapy which is indicated in STEMI patients presenting <12 hours after the onset of symptoms (there are specific indications for percutaneous coronary intervention [PCI] in patients presenting >12 hours). Time is extremely emphasized that recent European guideline set a target of 10 minutes as the maximum time for first medical contact to diagnosis and another 10 minutes from the diagnosis of STEMI to the start of fibrinolysis, meaning within 20 minutes the patient should already receive fibrinolytic in fibrinolytic reperfusion strategy. However, primary PCI is the best reperfusion strategy and should be done whenever possible unless the hospital is PCI-incapable and the distance to PCI-capable hospital is >120 minutes. Patients should then be monitored for complications and treatment outcome. Upon discharge, the patient should be given both lifestyle intervention and medications aiming to prevent further cardiovascular events, to minimize the damage, treating complication that might have happened, maintain patency of stent (if any), and optimizing the outcome.

Keywords: STEMI, reperfusion, myocardial infarction, fibrinolysis, percutaneous coronary intervention

NEUROSURGERY

WS-5

SURGICAL ROLE FOR BRAIN AND SPINE TUMOR

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No Abstract

ORTHOPEDICS

WS-6

CASTING + SPLINTING

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No Abstract

EHT

WS-7

EPIGLOTTITIS: A SIMPLE LIFE-THREATENING DISEASE

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Introduction: Epiglottitis is an acute inflammation of the supraglottic region of oropharynx, base of tongue, epiglottis, vallecula, arytenoids, and aryepiglottic folds. It can occur at any age with diverse presenting symptoms. It is a life-threatening disorder that may lead to sudden respiratory failure.

Case: A 59 years old woman with history of type II diabetes mellitus (DM) presented in Emergency Departement (ED) with chief complaint of shortness of breath in the past two weeks that worsening since last week, accompanied with high fever, cough, severe dysphagia and inability to swallow. Changes in voice was not noticed.

Patient was restless and look illness. Tachypnea, retraction and accessory muscle breathing was observed. Patient preferred to sit instead of laying. Drooling and inspiratory stridor was found. Lymphadenopathy and cellulitis around the neck was not found.

Soon upon the admission to ED, patient was collapse due to respiratory distress. Emergency airway management was done by orotracheal intubation, followed by tracheostomy in general anesthesia. After securing the airway, radiographic examination was performed and patient was admitted to the ICU. Soft tissue lateral neck x-ray showed thumb print sign, and laryngoscopic examination showed epiglottic edema and ulcerative laryngitis. Microbiology study showed *Klebsiella pneumoniae* infection and positive MRSA screening from nasal swab.

Antibiotics (ceftriaxone, metronidazole) and antipyretic were administered intravenously.

Discussion: Adult patient with epiglottitis may present with diverse complaint and different degree of airway obstruction. In this case, patient was present with shortness of breath, unable to speak clearly, inspiratory stridor, drooling, and restless. Patient that showed symptoms of obstruction are prone to respiratory failure and the airway should be secured as

soon as possible. Radiographic examination should be done after the airway was secured. In addition to confirm radiographic result, laryngoscopic examination was performed, and ulcerative laryngitis was found, suspected due to trauma during previous intubation. Microbiology study showed pathogen are diverse in adult. Patient has history of type II DM which become underlying comorbid condition. Acute epiglottitis should be treated with antibiotics.

Conclusion: Primary care practitioner and the emergency team need to be aware of the early signs of epiglottitis, its potential to respiratory failure, and its emergency management. Early recognition and rapid intervention to this illness is important to avoid life-threatening condition and its complications.

Keywords: *Acute epiglottitis, Diagnosis, Managemet, Tracheostomy*

ANESTESIOLOGY

WS-8

MANAGEMENT OF SEPSIS AND SEPTIC SHOCK

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Sepsis is a very complex, deadly disease with a very high incidence and mortality rate, despite the progress that has been achieved now. The definition of sepsis has undergone changes, is no longer oriented to inflammatory factors. Before, sepsis is a systemic inflammatory response syndrome (SIRS) caused by infection, but now, it is more oriented to organ dysfunction and sepsis, according to the latest definition, is life-threatening organ dysfunction caused by dysregulation of the body due to infection. Sepsis is a disease whose outcome depends on how fast treatment has been given, the mortality rate will increase to 12% per hour, so early diagnosis is one of the keys to the successful treatment of patients with sepsis. The diagnosis of organ dysfunction can be made with sequential Organ Failure Assessment Score (SOFA), but using the SOFA score will require a long time because it requires a laboratory examination, so rapid diagnosis requires quick SOFA (qsofa), which comprises of two or more out of the following three symptoms:

1. Decrease in consciousness
2. Respiratory rate ≥ 22 x / minute
3. Systolic pressure ≤ 100 mmHg.

Fluid resuscitation is one of the most important initial treatments and is recommended by the Surviving Sepsis Campaign (SSC). Crystalloid administration of 30 ml / kg can be given to overcome hemodynamic disorders that often occur in septic patients, however, must be very careful in administering fluids in sepsis patients, because excess fluid can cause even worse conditions leading to death.

On this opportunity, we will discuss the update of handling patients with sepsis, especially how to make a diagnosis, overcome hemodynamic disorders and overcome infections in sepsis patients.

NEUROLOGY

WS-9 A

UPDATE TREATMENT ON ACUTE ISCHEMIC STROKE

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Ischemic Stroke has continuously become a worldwide burden, and scientists all over the world had put a great effort and interest in studying the treatment and prognosis of stroke. Treatment on Acute Ischemic Stroke has developed significantly in the last few years. Some of them are the stroke golden period time, recommendations on what to do and to order for EMTs, importance of some of the lab and diagnostic procedures, thrombolytic dosing indications and outcome, thrombolytic and thrombectomy procedures, and prognosis of stroke. Research has made a big difference in stroke guidelines, therefore clinicians need to be aware of the changes and apply these updates in their clinical practice. One of the biggest debate in thrombolytic is which cases to thrombolys. There were extensive research on how to select patients eligible for thrombolysis and whether the outcome shows greater benefit than harm. However, dealing with acute ischemic stroke patients does not give clinicians much time to weigh since time is the essence. Therefore a stroke team must be well established and clinical pathway should be well developed.

WS-9 B

UPDATE CLINICAL DIAGNOSIS ON CNS INFECTION

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Indonesia is one of the largest country in the world and tropical disease including tropical infection is one of the majority cases encountered. Infection in the CNS is one of the most debilitating condition, with a high morbidity and mortality. It is most prevalent in young age on their productive times, therefore decreasing productivity of one's nation. CNS infection has been a challenge, since its nonspecific symptoms that resembles other conditions. No wonder CNS infection is frequently misdiagnosed which led to mistreatment and poor outcome.

The awareness of CNS infection is one of the important aspects in increasing CNS infection detection. With GP and specialists aware of the disease, more and more patients could be diagnosed early on their early stages which makes treatment more focused with better expected prognosis.

CNS infection has been increasing sharply in the last 2 decades with the increasing incident of HIV AIDS. The challenge seems to be escalated and clinicians were forced to deal with multiple comorbid which complicates the treatment of CNS infection even more. Therefore, knowledge combined with experience in the field should be comprehensively updated and applied in daily practice.

SURGERY

WS-10

CHRONIC WOUND MANAGEMENT : AN UPDATE

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Management of chronic wound still a challenge until now, recently a lot of modern dressing which can stimulate wound healing. Current treatments available now are not a ‘fix all’ solution, and many chronic wounds persist for months, even years, with a major limb amputation required. Advanced wound treatment has been developed, such as Skin substitutes (cellular or acellular), Keratinocyte dressing, Keratin – derived dressing, amniotic membrane, oxygen, topical negative pressure, Extra Corporeal Shock Wave Therapy (ESWT), electrical stimulation, growth therapy, OPAL A, Monoclonal antibody therapy, Protease Inhibitor, Connexin inhibitor, Platelet rich plasma and medication. There still lack of evidence in human trial and need high cost, but the most effective way is a prevention for people who have high risk to suffer from diabetic ulcer, Pressure sore, or venous ulcer, etc.

Keywords: *Chronic wound, management, Advanced Therapy*

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No Abstract

OPHTHALMOLOGY

WS-11

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No Abstract

PULMONOLOGY

WS-12

SPIROMETRY LUNG TEST

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No Abstract

WS-13

INHALATION THERAPY

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Inhalation therapy is a method of giving medicine directly to airway in aerosol or dry powder form. Inhalation therapy has been used for more than 200 years. The principle in inhalation therapy is the drug can reach target organ by producing aerosol particles with optimal sizes so that they can deposited in the lungs with fast acting onset, small dose, minimal side effects, and user friendly so that the therapeutic effect can be obtained immediately. The term “inhaler” has been used for the first time in 1778 by John Mudge and then the technique for inhalation therapy has been developed ever since.

Inhalation therapy still becomes the first line method of therapy for asthma and chronic obstructive pulmonary disease (COPD) due to the advantages that has been mentioned above. The aerosol formations and drug delivery methods are important things to be considered so that the drug can be deposited effectively in the lungs. Particle size will affect the place of drug deposition in airways until alveoli besides particle mileage, ventilation pattern, airway anatomy, particle density, and humidity.

Nowadays, inhaler devices have been developed widely with many advantages and disadvantages. There are 3 types of drug delivery systems by inhalation which are metered dose inhaler (MDI), dry powder inhaler (DPI), dan nebulizer. Drugs that usually delivered by inhalation systems are bronchodilators such as short-acting and long-acting β 2-adrenergic agonists (SABAs and LABAs), anticholinergics such as short-acting and long-acting anti-muscarinic agents (SAMAs and LAMAs), inhaled corticosteroids (ICS), nonsteroid anti-inflammations (NSAIDs), antibiotics, and mucolytics. The effectiveness of inhalation therapy depends on drug delivery systems and patients' ability to use the inhalation systems appropriately that are related to the drug distribution including the number of drugs deposited in the oropharynx. The choice of an inhaler device is important to understand aside from the training of inhaler using technique to achieve optimal therapy for the patients.

DERMATOLOGY

WS-14

ACNE VULGARIS

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Acne vulgaris is a chronic skin lesion in the pilosebaceous follicle with characteristic comedones, papules, pustules, nodules, starting at the age of adolescence to adulthood, which is easy to recognize clinically. Clinical examination and classification of acne severity are needed to determine treatment options and assess success of the treatment including the number and shape of acne lesions, severity, anatomical location of scar tissue and also the effect on quality of life. At present, there are several classifications of acne that cannot be recognized globally. The use of digital technology also assesses the pH of the skin can more accurately and objectively assess the classification of acne in the future. Skin disorders that resemble acne vulgaris and are differential diagnoses include: Acneiform eruption, Pityrosporum folliculitis, Molluscum contagiosum, Milia, Perioral dermatitis, Rosacea, Sebaceous gland hyperplasia, Syringoma, Keratosis pilaris. Recognizing these can prevent misdiagnosis and help treat and cure acne vulgaris. Acne vulgaris is a chronic skin lesion in the pilosebaceous follicle with characteristic comedones, papules, pustules, nodules, starting at the age of adolescence to adulthood, which is clinically easy to recognize.

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No Abstract

WS-15

MANAGEMENT OF ACNE VULGARIS

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Acne is one of the most common skin disorders of the pilosebaceous unit, which dermatologist and other health care providers have to treat. It most often affects especially in adolescents and young adults. This evidence-based guideline in acne management is very important. Topical and systemic management of the disease depend on grading of acne. The purpose of this article is to review the suggestions on use are provided based on available evidence.

Key word: *acne, acne management, grading and classification of acne, guideline hormonal therapy*

PEDIATRIC

WS-16

DIARRHEA, DEHYDRATION AND ELECTROLITE IMBALANCE IN CHILDREN: HOW TO MANAGE

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- 2. dr. Melanie Widjaja, SpA**
- 3. dr. Andry Juliansen, SpA**
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No Abstract

FORENSICS

WS-17

The Role of Physicians in Forensic Medicine Service for Victims of Violence

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No Abstract

OBSTETRICS & GYNECOLOGY

WS-18

HOW TO DEAL WITH PPH-CONDOM CATHETER APPLICATION

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No Abstract