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IN THIS ISSUE:

PCCP 37th ANNUAL CHEST CONVENTION
"Master Pulmonary Medicine: Simplifying Pulmonology for Clinical Practice"

March 11-14, 2018
EDSA Shangri-La Manila, Mandaluyong City`

Scientific Program • Convention Abstracts •
Peer-reviewed Articles

AN OFFICIAL PUBLICATION OF PHILIPPINE COLLEGE OF CHEST PHYSICIANS

PHILIPPINE JOURNAL OF CHEST DISEASES
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Address all communication and manuscripts for publication to the following: The Editor, Philippine Journal of Chest Diseases, 84-A Malakas St., Pinyahan, Quezon City. Email: secretariat@philchest.org. Phone: (+632) 924 9204.

INSTRUCTIONS TO AUTHORS

The Philippine Journal of Chest Diseases publishes scientific papers in the field of pulmonary medicine. These papers may be in the form of collective and current reviews (state of the art, meta-analyses), original investigations, case reports, editorials or letters to the editor. All manuscripts must be submitted electronically to secretariat@philchest.org. Manuscripts should be single spaced and left-justified, including references. Use 10-point type, approximately 1-inch margins, and format for 8 ½ x 11 paper. The editorial staff requires files that can be opened and manipulated in Word 2004-2009, PowerPoint or Excel.

Accepted manuscripts become the property of the Philippine College of Chest Physicians and are published with the understanding that they are not for publication elsewhere without approval. These manuscripts are subject to editorial modification.

Generally, write using the first person, active voice; for example, "We analyzed data," not "Data were analyzed." The Abstract and acknowledgments or disclaimers are the exceptions to this guideline, and should be written in the third person, active voice; "The authors analyzed," "The authors wish to thank."

Supply a title page as the first page of the manuscript with the following information:

1. The manuscript's full title which should provide sufficient information regarding the contents of the manuscript.
2. All authors should provide their complete names, professional titles, and institutional affiliations. Include an author byline that lists all authors' full names and academic degrees above a Masters; for example, "Juana Cruz, MD, PhD, and Juan Ramos, MD". Also include sentence-style bios for each author than list position(s) or title(s) and institutional affiliation(s); for example, "Dr. Cruz is assistant professor, Section of Pulmonary Medicine, Department of Internal Medicine, State University College of Medicine".
3. Contact information (address and email address, plus telephone and/or fax) for the corresponding author.
4. Disclosure of funding received for this work from any organization or company.
5. State if the paper has been presented in any convention and whether any awards have been conferred on the paper.

Abstract. The abstract should not be longer than 250 words. It should contain a summary of what was done in the study, including objectives, study design, important results and conclusions. Only findings restricted to the study should be mentioned in the abstract. For research reports only, abstracts must be in the structured form of four paragraphs, with headings Purpose, Methods, Results, and Conclusions; and must include the year of the study. The authors should also provide three key words under which the article can be indexed.

Headings

For all manuscripts. Use main headings and short subheadings as needed. Do not create a heading at the very top of the manuscript (e.g., "Introduction"), since layout constraints make such headings unworkable. Text should be set in Times New Roman font, 10 point in size, and single-spaced. The main heading of the online-only text should be in 12 point and boldface; subheadings should be in 10-point and boldface. If subheadings are used, two or more such headings must be used, as in outline style.

For research reports. Structure the body of the manuscript using the headings Introduction, Methods, Results, and Conclusions. At least a full paragraph of text must precede the Introduction heading, for layout reasons.

For articles. Create headings that are substantive and interesting and that will give readers a sense of the article's organization. Make headings as short as is feasible. At least a full paragraph of text must precede the initial heading, for layout reasons.

Text. Formal scientific or technical style shall be followed in writing the manuscripts. All abbreviations should be spelled out when used for the first time. For standard terminology, such as chronic obstructive pulmonary disease

(COPD) or forced vital capacity (FVC), only standard abbreviations should be used. Information or data that is best described in tables should be presented as such. Tables which duplicate information provided in the text shall be removed. Generic names of drugs shall be used except in instances where trade names are vital, such as in clinical trials.

Tables and Figures. Only tables cited in the text should be included. All tables should be called out in the text and shall be numbered in ascending order depending on the sequence they were referred to in the text. A different order for tables and figures is to be used. Symbols are * † ‡ § ¶.

A single table or figure with the appropriate labels should be printed on a single page. The text and data in online tables should be Arial font, 10 point in size, and single-spaced. The table title should be set in Arial font 12 point, and bold. Headings within tables should be set in 10 point bold.

Explanatory notes or legends should be written at bottom of the table or figure. Table titles should make the table sufficiently understandable independent of the manuscript. Typically, include type of data, number and type of respondents, place of study, year of study. Titles should be placed directly above the table, not in a data cell. Columns should be clearly labeled, including unit of measure.

Footnotes: If information is needed to make the table understandable that won't easily fit into the table title or data cells, create one or more footnotes. Table footnotes should be set in 8 point and single-spaced. Place footnotes at the bottom of the table, not in a data cell. All abbreviations should also be explained.

Figures. Only figures (or pictures) cited in the text should be included. All figures should be called out in the text and shall be numbered in ascending order depending on the sequence they were referred to in the text. A different order for tables and figures is to be used.

Figures are acceptable as Excel, PowerPoint or Word 2004-2009 files. All files supplied must be "live" figures that can be opened and formatted. PDFs and JPGs are not accepted. Figures should be two-dimensional; black-and-white or grayscale; and without gridlines or background shading. X and Y axes, if present, must be labeled.

Figure legends should make the figure sufficiently understandable independent of the manuscript. Legends should be placed on the last page in the manuscript. All figures should be separated from the text file, yet bundled into a common file, if possible, with individual figures separated by page breaks.

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For world wide web citations, follow the following format: <author's name> <title of document> <<URL>> <date of document> (accessed <date accessed>). You may break URLS across lines, but if possible, arrange for breaks to occur only at punctuation separators (but not on hyphens, and don't ever add hyphens).

Samples of the style to be followed in the listing references are enumerated below:

JOURNAL ARTICLE: Tanchuco JQ, Young J. Normal standards for spirometric tests in Filipino children. Chest Dis J 1989. 16:93-100.

BOOK: Kelley MA, Fishman AP. Exercise Testing. In: Pulmonary Diseases. 2 edition. Fishman AP, (ed.). McGraw-Hill Book Co.; 1989. pp.2525-2532.

WORLD WIDE WEB: Horton M, Adams R. Standard for interchange of USENET messages Request for comment s 1036, Network Working Group. <ftp://ftp.demon.co.uk/pub/doc/rfc/rfc1036.txt> Dec.1987 (Accessed 19 June 1995)

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PHILIPPINE JOURNAL OF CHEST DISEASES
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TABLE OF CONTENTS

JANUARY-MARCH VOLUME 18 NUMBER 1

PHILIPPINE JOURNAL OF CHEST DISEASES
AN OFFICIAL PUBLICATION OF PHILIPPINE COLLEGE OF CHEST PHYSICIANS

TABLE OF CONTENTS

JANUARY-MARCH VOLUME 18 NUMBER 1

PHILIPPINE JOURNAL OF CHEST DISEASES
AN OFFICIAL PUBLICATION OF PHILIPPINE COLLEGE OF CHEST PHYSICIANS

TABLE OF CONTENTS

JANUARY-MARCH VOLUME 18 NUMBER 1

PROGRAMME OVERVIEW

<table>
<tr><th>TIME</th><th colspan="5">Day 0 – MARCH 11 (SUN)</th><th colspan="3">Day 1 – MARCH 12 (MON)</th></tr>
<tr><td>07:30AM</td><td rowspan="13">REGISTRATION (located at Batanes Room)</td><td rowspan="9">Post-Graduate Course: Project A.I.Rx (located at Isla Ballroom 3)</td><td rowspan="9">ASTHMA Education Certifying Workshop (located at Mactan Room)</td><td rowspan="9">Ka-OSA ka ba?"(Lay Fora) (located at Boarcay Room)</td><td rowspan="6"></td><td colspan="3">Sunrise Symposium 1
QUIZ CONTEST
"Master Pulmonologist Junior Edition"
(Palawan Room)</td></tr>
<tr><td>09:00</td><td colspan="3">High Yield PLENARY SESSION 1
"Catastrophic Cost of TB"
Dr. Jhiedon Florentino</td></tr>
<tr><td>09:10</td><td colspan="3" rowspan="3">MASTER
PLENARY SESSION 2
"Treatment outcome
in COPD: What matter most?"
Dr. Antonio R. Anzueto</td></tr>
<tr><td>09:20</td></tr>
<tr><td>09:30</td></tr>
<tr><td>09:40</td><td colspan="3">MEET THE MASTERS
Visit the EXHIBITS</td></tr>
<tr><td>10:00</td><td rowspan="7">Orientation of NEW MEMBERS
(10:00 am– 12:00nn, Sulu Room)</td><td colspan="3">MASTER PLENARY SESSION 3
"National Tuberculosis Prevalence Survey"
Dr. Mary Ann D. Lansang</td></tr>
<tr><td>10:30</td><td colspan="3">MASTER PLENARY SESSION 4
"Fine Tuning Asthma Management:
Treatment of Co-Morbidities"
Dr. Christopher Worsnop</td></tr>
<tr><td>11:00</td><td colspan="3">MASTER PLENARY SESSION 5
"State-of-the Art:
Pleural Disease Management"
Dr. Pyng Lee</td></tr>
<tr><td>11:30</td><td colspan="3">MEET THE MASTERS
Visit the EXHIBITS</td></tr>
<tr><td>12:00NN</td><td>LS
OEP
(Isla 3)</td><td colspan="2" rowspan="2"></td><td rowspan="6">Research Contest Oral Presentation
(12:00 nn– 2:00pm, Sulu Room)</td><td>LS1
Boehringer Ingelheim
(Isla 1)</td><td>LS2
Astra Zeneca
(Isla 2)</td><td>LS3
Boehringer Ingelheim
(Palawan)</td></tr>
<tr><td>01:30PM</td><td colspan="3">Visit the EXHIBITS</td></tr>
<tr><td>01:45
02:00
02:45</td><td rowspan="2">PG Course: Project A.I.Rx (Palawan Room)</td><td rowspan="2">ASTHMA Education Certifying Workshop
(Mactan Room)</td><td rowspan="2"></td><td>CS 1
Protecting Yourself in your Clinical Practice and the On-line World</td><td>CS 2
Primary Palliative Care for Pulmonary Medicine</td><td>CS 3
Interventional Approaches to Lung Masses and Malignancies</td></tr>
<tr><td>03:45</td><td>CS 4
Oral Therapies in Problematic Pulmonary Diseases: Cancer, VTE & ILD</td><td>CS 5
Getting the Most Out of your Diagnostics: PFT, Sleep Studies & the Chest Ultrasound</td><td>CS 6
Prescribing Oxygen and Addressing Hypoxemia</td></tr>
<tr><td>04:30</td><td colspan="5">OPENING CEREMONIES
Induction of NEW MEMBERS
Dr. Fernando G. Ayuyao (Honor Lecture)
Isla Ballroom 1 & 2</td><td colspan="3" rowspan="2"></td></tr>
<tr><td>07:00PM</td><td colspan="5">PRESIDENT'S HONOR BANQUET*
Santan Room</td></tr>
</table>

***President's Honor Banquet by invitation.** **Note: Plenary sessions at Isla Ballroom 1 & 2; LS and CS sessions at Isla 1 & 2 and Palawan.**

PROGRAMME OVERVIEW

TIME	Day 2 – MARCH 13 (TUES)			Day 3 – MARCH 14 (WEDS)		
07:30AM	Sunrise Symposium 2 INTER-HOSPITAL DEBATE "To give or not to give TB Cat I to Retreatment Cases" (Palawan Room)			Sunrise Symposium 3 MEDICAL ETHICS "Mastering the Duty of Care" (Isla 1)		
09:00	High Yield PLENARY SESSION 6 "Ten Steps to Understanding the Philippine CPG on the Diagnosis and Management of Obstructive Sleep Apnea in Adults " Dr. Virginia S. de Los Reyes			MASTER PLENARY SESSION 13 "Updates in ARDS Management" Dr. Linus John H. Santo Tomas		
09:10	High Yield PLENARY SESSION 7 "Ten Minutes of Philippine Clinical Practice Guidelines Diagnosis and Treatment of Tobacco Use and Dependence" Dr. Lalaine L. Mortera					
09:20	High Yield PLENARY SESSION 8 "Ten Things to know about The Philippine COPD Profile and Survival Study (CPASS)" Dr. Roland M. Panaligan					
09:30	High Yield PLENARY SESSION 9 "Phil. Consensus Report on Asthma Diagnosis & Management 2018" Dr. Dina V. Diaz			MASTER PLENARY SESSION 14 "Communicating with the Filipino Patients" Dr. Gideon Lasco, PhD		
09:40	MEET THE MASTERS Visit the EXHIBITS					
10:00	MASTER PLENARY SESSION 10 "Non-invasive Ventilation in Acute Respiratory Failure" Dr. Mark Elliott			MASTER PLENARY SESSION 15 "COPD: Life after the Hospital and the ICU" Prof. Jadwiga Wedzicha		
10:30	MASTER PLENARY SESSION 11 "Lung Cancer Management 2018" Dr. Kwun Fong			PLENARY SESSION 16 FERMIN MANALO MEMORIAL LECTURE "Pulmonary Couples: Who is the Master of the House?" Dr. Tony T. Dy & Dr. Ester Jean R. Dy Dr. Adelito D. Posas & Dr. Gemma B. Posas		
11:00	MASTER PLENARY SESSION 12 "Navigating Bronchiectasis" Dr. Charles S. dela Cruz, PhD					
11:30	MEET THE MASTERS Visit the EXHIBITS			Launching of New PCCP Logo		
12:00NN	LS4 GSK (Isla 1)	LS5 Novartis (Isla 2)	LS6 Westmont (Palawan)	LS7 Mundipharma (Isla 1)	LS8 UAP (Isla 2)	LS9 Novartis (Palawan)
01:30PM	Visit the EXHIBITS			Visit the EXHIBITS		
01:45 02:00 02:45	CS 7 Learning and Treating Patients with Technology	CS 8 Trouble-shooting: when Patients have Problems with Treatment	CS 9 Multi-disciplinary Team Approach: A Resectable Lung Cancer Case with Severe COPD	PCCP BUSINESS MEETING (2:00PM)		
03:45	CS 10 Ventilator Management: from set-up to solving problems	CS11 Bundles for Better Outcomes: Nutrition in the Critically Ill, Tracheostomy Care, VAP/VAT Prevention	CS 12 Beyond Diagnosis-Understanding HIV from the Patient to the Provider Standpoint – A Panel Discussion	INDUCTION OF NEW OFFICERS CLOSING CEREMONIES FELLOWSHIP NIGHT (Isla Ballroom 1 & 2)		
04:30 07:00PM	TRAINING INSTITUTION'S REUNION					

Note: Plenary sessions at Isla Ballroom 1 & 2; LS and CS sessions at Isla 1 & 2 and Palawan.

The 37th Annual Chest Convention

March 11-14, 2018 EDSA Shangri-la Manila

SCIENTIFIC PROGRAM

11 MARCH (Day 0) – PRE CONVENTION

Post-Graduate Course: Project A.I.Rx
11 March 2018 (Sunday), 08:00AM to 03:00PM
Isla Ballroom 3, lower lobby of Edsa Shangri-La, Manila
Chairman: Guinevere N. Dy-Agra, MD, FPCCP

Objectives:
At the end of the session, the attendees will be able to:
a. Assess adequately a patient's need for oxygenation
b. Give proper prescription for O2 inhalation and modify treatment accordingly
c. Give supportive inhalational therapies using proper device and mode of administration

08:00-09:00	**Physiology of oxygenation: Ventilation and Gas transport**	**Tim S. Trinidad, MD, FPCP, FPCCP**
09:00-09:45	Tests to evaluate oxygenation/ventilation 1. ABG and small things you ignore about it 2. Pulse oximetry 3. Shunt study 4. Lung diffusion study 5. High altitude simulation testing	Linus John H. Santo Tomas, MD, MS
09:45-10:00	Coffee Break	
10:00-11:00	Oxygen Use in Acute Hospital Settings	Linus John H. Santo Tomas, MD, MS
11:00-12:00	Inhalational Therapy	Patrick Gerard L. Moral, MD, FPCP, FPCCP

Luncheon Symposium
Title: "Move to the Next Level NEXThaler: The next generation of intuitive device"
Speaker: Prof. Dave Singh (UK)
(Through a CME grant from **OEP Philippines Inc.)**
Isla Ballroom 3, 12:00NN – 01:30PM

TIME	TOPIC	SPEAKER	
01:00-01:30PM	Practical Aspects of O2 therapy Devices for O2 inhalation	Reyna M. Pios-Talaver, RTRP	3 stations
01:30-02:00PM	High Flow Nasal Cannula	Guinevere N. Dy-Agra, MD, FPCP, FPCCP	
02:00-02:30PM	Inhalational devices	Cesar G. Bugaoisan Jr., RTRP, CRT	
01:30-03:00PM	Open Forum	All Faculty	

Asthma Education Certifying Workshop
11 March 2018 (Sunday), 08:00AM to 04:00PM
presented by Council on Bronchial Asthma & ACCP Phils. Chapter
(Mactan 1 & 2 Room, lower lobby, Edsa Shangri-La, Manila)

"Ka-OSA ka ba?" (Lay Forum)
11 March 2018 (Sunday), 08:00AM to 12:00NN
presented by Council on Obstructive Sleep Apnea (Ad Hoc)
(Boracay Room, lower lobby, Edsa Shangri-La, Manila)

ORIENTATION OF NEW MEMBERS
11 March 2018 (Sunday), 10:00AM – 12:00NN

RESEARCH ORAL CONTEST
11 March 2018 (Sunday), 12:00NN – 03:00PM

OPENING CEREMONIES
INDUCTION OF NEW MEMBERS
HONOR LECTURE
Fernando G. Ayuyao, MD, FPCCP
11 March 2018 (Sunday), Isla Ballroom 1 & 2
04:00PM – 06:00PM

PRESIDENT'S HONOR BANQUET (by invitation)
11 March 2018 (Sunday), 07:00 – 09:00PM
Santan 1 & 2 Room, Garden Wing, EDSA Shangri-La

12 MARCH (Day 1)

SUNRISE SYMPOSIUM 1: "Master Pulmonologist Junior Edition"
7:30am – 9:00am at Palawan Room, lower lobby of Edsa Shangri-La, Manila

HIGH YIELD PLENARY SESSION 1: "Catastrophic Cost of TB"
Jhiedon Florentino, MD (Philippines)
09:00am to 09:10am, Isla Ballroom 1 & 2

OBJECTIVES:
At the end of the session, the participant will be able to:
1. appreciate the economic impact of tuberculosis
2. secure information that may help a patient and his family understand the need for TB disease prevention and adherence to treatment

MASTER PLENARY SESSION 2: "Treatment outcome in COPD: What matter most?"
Antonio R. Anzueto, MD (USA)
09:10am to 09:40am, Isla Ballroom 1 & 2

OBJECTIVES:
At the end of the session, the participant will be able to:
1. identify the important outcomes in the treatment of COPD
2. understand what are the significant measures of outcome

OPENING OF EXHIBITS
12 March 2018 (Monday), 09:40am
Lower lobby, Edsa Shangri-La, Manila

MEET THE MASTERS / Visit the EXHIBITS
12 March 2018 (Monday), 09:40am – 10:00am
Boracay Room 1, Lower lobby, Edsa Shangri-La, Manila

12 MARCH (Day 1)

MASTER PLENARY SESSION 3: "National Tuberculosis Prevalence Survey"

Mary Ann D. Lansang, MD, FPCP, FPSMID (Philippines)
10:00am to 10:30am, Isla Ballroom 1 & 2

OBJECTIVES:

At the end of the session, the participant will be able to:

1. learn the results of the most recent National TB Prevalence survey
2. understand its potential effect on health policies and clinical practice

MASTER PLENARY SESSION 4: "Fine Tuning Asthma Management: Addressing the Co-Morbidities"

Christopher Worsnop, MD (Australia)
10:30am to 11:00am, Isla Ballroom 1 & 2

OBJECTIVES:

At the end of the session, the participant will be able to:

1. identify the different co-morbidities that may influence asthma control
2. learn the management approaches that will minimize the impact of co-morbidities

MASTER PLENARY SESSION 5: "State-of-the Art: Pleural Disease Management"

Pyng Lee, MD (Singapore)
11:00am to 11:30am, Isla Ballroom 1 & 2

OBJECTIVES:

At the end of the session, the participant will be able to:

1. know the developments in the diagnostics for pleural disease
2. become aware of the most recent interventional approaches in pleural disease care that may be performed by pulmonologists

MEET THE MASTERS / Visit the EXHIBITS
12 March 2018 (Monday), 11:30am – 12:00nn
Boracay Room 1, Lower lobby, Edsa Shangri-La, Manila

12 MARCH (Day 1)

LUNCHEON SYMPOSIUM 1 & 3:
Title: "Tiotropium + Olodaterol (Spiolto): Optimizing Bronchodilation in COPD Care"
Speaker: Dr. Antonio R. Anzueto (USA)
(Through a CME grant from Boehringer Ingelheim)
12:00nn to 1:30pm, Isla Ballroom 1 and Palawan Room-live feed)

LUNCHEON SYMPOSIUM 2:
Title: "All Things Considered, Consider These Things: The Advantages of SMART"
Speaker: Dr. Christopher Worsnop (Australia)
(Through a CME grant from Astrazeneca Pharmaceutical Philippines Inc.)
12:00nn to 1:30pm, Isla Ballroom 2

VISIT THE EXHIBITS
12 March 2018 (Monday), 01:30pm – 01:45pm
Boracay Room 1, Lower lobby, Edsa Shangri-La, Manila

CONVENTION SYMPOSIUM 1: "Protecting Yourself in Your Clinical Practice and the Online World"

Guarding Your Health in the Management of Pulmonary Patients
Mario M. Panaligan, MD, FPCP, FPSMID

Providing Legal Cover for Your Clinical Practice
Atty. Antonio D. Rebosa, MD

Managing & Promoting a Positive Online Image as a Health Professional
Ma. Gia B. Sison, MD, DPCOM

TIME & VENUE: 01:45pm to 02:45pm, Isla Ballroom 1

OBJECTIVES:
At the end of the session, the participant will be able to:
1. identify potential health hazards in the management of respiratory infections and institute protective measures
2. learn the appropriate responses to common clinical scenarios that may have legal implications and minimize the likelihood of litigation
3. determine ones digital footprint and direct it towards a positive online image

CONVENTION SYMPOSIUM 2: "Primary Palliative Care for Pulmonary Medicine"

Advance Care Planning in Pulmonary Disease
Rumalie A. Corvera, MD

Dyspnea and Pain Management in End Stage Lung Disease
Maria Dolma R. Gudez-Santos, MD

Management of the Actively Dying Patient
Mary Jocylyn S. Bautista, MD

TIME & VENUE: 01:45pm to 02:45pm, Isla Ballroom 2

OBJECTIVES:
At the end of the session, the participant will be able to:
1. make advance care planning an integral part of medical practice
2. understand the concepts and principles of pain and dyspnea management.
3. appreciate the concerns of a patient and his caregivers in the dying process and to learn how to address these

CONVENTION SYMPOSIUM 3: "Interventional Approaches to Lung Masses and Malignancies"

The Image Guided Percutaneous Biopsy: An In-depth Discussion
Jackson U. Dy, MD

Revisiting the Transbronchial Biopsy: Understanding the Advances
Christine L. Chavez, MD, FPCP, FPCCP

Management of Centrally Obstructing Malignant Lesions
Pyng Lee, MD (Singapore)

TIME & VENUE: 01:45pm to 02:45pm, Palawan Room

OBJECTIVES:
At the end of the session, the participant will be able to:
1. understand the advantages and limitations of image guided percutaneous biopsies
2. learn the developments in transbronchial biopsy
3. know the interventional pulmonary approach to malignant airway disease

12 MARCH (Day 1)

CONVENTION SYMPOSIUM 4: "Oral Therapies in Problematic Pulmonary Diseases: Cancer, VTE & ILD"

Oral Targeted Therapy for Lung Cancer
Maria Luisa T. Abesamis-Tiambeng, MD, FPCP, FPSMO

Novel Oral Medications for VTE
Julie Christie G. Visperas, MD, FPCP, FPCCP

Interstitial Lung Disease: What's available out there
Dina V. Diaz, MD, FPCP, FPCCP

TIME & VENUE: 02:45pm to 03:45pm, Isla Ballroom 1

OBJECTIVES:
At the end of the session, the participant will be able to:
1. identify the situations when oral medications are appropriate for cancer, VTE and ILD
2. understand the advantages and limitations of oral therapy

CONVENTION SYMPOSIUM 5: "Getting the Most Out of Your Diagnostics: PFT, Sleep Studies & the Chest Ultrasound"

Pulmonary Function Testing: Beyond the usual numbers
Irene Salve D. Joson-Vergara, MD FPCP, FPCCP

The Polysomnography: More than the Apnea-Hypopnea Index
Cristito B. Alea, MD FPCP, FPCCP

The Chest Ultrasound: Seeing behind the shadows
John Noel U. Chan, MD, FPCP, FPCCP

TIME & VENUE: 02:45pm to 03:45pm, Isla Ballroom 2

OBJECTIVES
At the end of the session, the participant will be able to:
1. extract more information from the study report
2. determine the clinical application of the additional data analyzed

CONVENTION SYMPOSIUM 6: Prescribing Oxygen and Addressing Hypoxemia

High Flow Nasal Cannula: When, Why and How?
Guinevere N. Dy Agra, MD, FPCP, FPCCP

Domiciliary Oxygen: Freeing the Patient from the bedside
Linus John H. Santo Tomas, MD, MS (US)

NIV in Hypoxemic Failure
Mark Elliott, MD (UK)

TIME & VENUE: 02:45pm to 03:45pm, Palawan Room

OBJECTIVES:
At the end of the session, the participant will be able to:
1. understand the advantages and limitations of high flow nasal oxygen
2. difference of home oxygen therapy from an inpatient setting
3. learn the various modalities available for domiciliary oxygen
4. apply non-invasive ventilation to appropriate cases of oxygenation failure

Chair: Rommel DLR Bayot, MD, FPCP, FPCCP
Co-chair: Erma D. Garcia-Lazaro, MD, FPCP, FPCCP

13 MARCH (Day 2)

SUNRISE SESSION 2: INTER-HOSPITAL DEBATE
7:30am – 9:00am at Palawan Room, lower lobby of Edsa Shangri-La, Manila

18th PCCP Inter-Hospital Engagement: The Pulmonary & Critical Care
"To give or not to give TB Cat I to Retreatment Cases"
(in cooperation of Council on Tuberculosis)

Debate Issue: Should all retreatment PTB cases with rapid molecular test result of "non-resistance for rifampicin" be given Category 1 regimen?

Background of Debate Issue: Based on DOH Memorandum no. 2017-0343, dated August 7, 2017, all presumptive retreatment TB with rapid molecular test result of "non-resistance to rifampicin" will be given standard first-line treatment Category I (2RHZE/4HR). This is in view of WHO's policies in the "Guidelines for Treatment of Drug-susceptible Tuberculosis and Patient Care – 2017 Update," released last April 2017, that states that "category II regimen is no longer recommended for patients who require TB retreatment and drug susceptibility testing should be conducted to inform the choice of treatment regimen." In line with the above DOH memo, it is the objective of this debate to determine the evidences available for and against this directive.

CASE: This is the case of Mr. RM., a 69 year-old male from Sampaloc, Manila, who came in due to cough and low back pain. Two months PTA the patient complained of low back pain described as dull and aching. No action was done, and there was no intake medications. One month PTA he complained of cough productive of yellowish sputum, associated with persistent chest and back discomfort. There was undocumented fever. He self-medicated with Ibuprofen which afforded temporary relief of the chest and back pain. Two weeks PTA, due to persistence of above symptoms, he consulted at a private hospital and was prescribed with unrecalled antibiotics and mucolytics. He was instructed to have a sputum Gene Xpert done and follow-up once results was available. One day PTA, he noted blood streaked sputum. There was persistence of cough and back pains, thus he sought consult and was advised admission. Result of Xpert was MTB not detected, no Rifampicin resistance.

PRO: In retreatment PTB cases with rapid molecular test result of "non-resistance for rifampicin." giving of Category 1 regimen is practical, beneficial and effective.	CON: In retreatment PTB cases with rapid molecular test result of "non-resistance for rifampicin." giving of Category 1 regimen is NOT practical, beneficial and effective.
1. Lung Center of the Philippines 2. Philippine Heart Center 3. Veterans Memorial Medical Center	1. Chong Hua Hospital (Cebu) 2. Cardinal Santos Medical Center 3. Makati Medical Center 4. Perpetual Succour Hospital (Cebu) 5. The Medical City

Host Teams	Chinese General Hospital St. Luke's Medical Center – QC University of Sto. Tomas Hospital
Session Chairperson	Julie Christie G. Visperas, FPCP, FPCCP
Session Co-chair	Jose Hesron D. Morfe, MD, FPCP, FPCCP
Moderator	Fredde G. Peleo, MD, FPCP, FPCCP
Judges	Mario M. Panaligan, MD, FPCP, FPSMID (USTH) Richmonde Reyes, MD, (CGH) Imelda M. Mateo, MD, FPCP, FPCCP (SLMC)
Emcee	Ed-Marvin C. Hilario, MD Jude P. Guiang, MD, FPCP, FPCCP

High Yield PLENARY SESSION 6:

"Ten Steps to Understanding the Philippine Clinical Practice Guidelines on the Diagnosis and Management of Obstructive Sleep Apnea In Adults"

Virginia S. de Los Reyes, MD, FCP, FPCCP
09:00am to 09:10am, Isla Ballroom 1 & 2

OBJECTIVES:
At the end of the session, the participant will be able to:
1. know the highlights of the local sleep guidelines
2. apply a step-wise approach in the diagnosis and management of obstructive sleep apnea

High Yield PLENARY SESSION 7:

"Ten Minutes of Philippine Clinical Practice Guidelines Diagnosis and Treatment of Tobacco Use and Dependence"

Lalaine L. Mortera, MD, FPCP, FPCCP
09:10am to 09:20am, Isla Ballroom 1 & 2

OBJECTIVES:
At the end of the session, the participant will be able to:
1. understand the importance of addressing tobacco dependence
2. apply the recommended strategies for cessation of tobacco use

High Yield PLENARY SESSION 8:

"Ten Things to know about The Philippine COPD Profile and Survival Study (CPASS)"

Roland M. Panaligan, MD, FPCP, FPCCP
09:20am to 09:30am, Isla Ballroom 1 & 2

OBJECTIVES:
At the end of the session, the participant will be able to:
1. understand the objectives of CPASS
2. learn how to participate in the study
3. track the current progress of the study

High Yield PLENARY SESSION 9:

"Philippine Consensus Report on Asthma Diagnosis and Management 2018"

Dina V. Diaz, MD, FPCP, FPCCP
09:30am to 09:40am, Isla Ballroom 1 & 2

OBJECTIVES:
At the end of the session, the participant will be able to:
1. know the changes in the Philippine asthma guidelines and the rationale behind them
2. secure an overview of the guidelines

13 MARCH (Day 2)

MEET THE MASTERS / Visit the EXHIBITS
13 March 2018 (Tuesday), 09:40am – 10:00am
Boracay Room 1, Lower lobby, Edsa Shangri-La, Manila

Master PLENARY SESSION 10: "Non-invasive Ventilation in Acute Respiratory Failure"
Mark Elliott, MD (UK)
10:00am to 10:30am, Isla Ballroom 1 & 2

OBJECTIVES:
At the end of the session, the participant will be able to:
1. determine the applicability of non-invasive ventilation in acute respiratory failure
2. understand the requirements needed in instituting non-invasive ventilation
3. identify the limitations of non-invasive ventilation

Chair: Emily Tan-Aventura, MD, FPCCP

Master PLENARY SESSION 11: "Lung Cancer Management 2018"
Kwun Fong, MD (Australia)
10:30am to 11:00am, Isla Ballroom 1 & 2

OBJECTIVES:
At the end of the session, the participant will be able to:
1. learn the advances in the diagnostic and therapeutic approaches
2. understand changes in lung cancer management in relation to the updated lung cancer staging

Chair: Windfield L. Tan, MD, FPCP, FPCCP

Master PLENARY SESSION 12: "Navigating Bronchiectasis"
Charles S. Dela Cruz, MD, PhD (USA)
11:00am to 11:30am, Isla Ballroom 1 & 2

OBJECTIVES:
At the end of the session, the participant will be able to:
1. understand the complexities of bronchiectasis care
2. manage bronchiectasis related infections

MEET THE MASTERS / Visit the EXHIBITS
13 March 2018 (Tuesday), 11:00am – 12:00nn
Boracay Room 1, Lower lobby, Edsa Shangri-La, Manila

LUNCHEON SYMPOSIUM 7:
TITLE: "Respiratory Headliners: A Back-to-Back discussion: Head to Head Study between two Once Daily LAMA/LAMA combinations The Salford Lung Study for Asthma"
SPEAKER: Celeste Mae L. Campomanes, MD, FPCP, FPCCP (Philippines)
(Through a CME grant from Glaxo Smith Kline Phils., Inc.)
12:00nn to 01:30pm, Isla Ballroom 1

LUNCHEON SYMPOSIUM 5:
TITLE: "GOLD Standards: Dual Bronchodilation Therapy and Appropriate ICS Use in COPD"
SPEAKER: Prof. Jadwiga Wedzicha (UK)
(Through a CME grant from Novartis Healthcare Philippines, Inc.)
12:00nn to 01:30pm, Isla Ballroom 2

LUNCHEON SYMPOSIUM 6:
Title: "It's time."
SPEAKER: Daniel T. Tan, MD, FPCP, FPCCP (Philippines)
(Through a CME grant from Westmont Pharmaceutical, Inc.)
12:00nn to 01:30pm, Palawan Room

CONVENTION SYMPOSIUM 7: "Learning and Treating Patients with Technology"

Mobile Technology in Patient Monitoring
Earl Louis A. Sempio, MD, FPCP, FPCCP

Up to the Minute Information with Mobile Technology
Rodolfo S. Pagcatipunan Jr., MD, FPCP, FPCCP

Social Media in Improving Patient Care
Iris Thiele Tan-Isip, MD, FPCP, FPSEM
01:45pm to 02:45pm, Isla Ballroom 1

OBJECTIVES:
At the end of the session, the participant will be able to:
1. know how to utilize mobile devices such as phones and watches in monitoring pulmonary disease and adherence to treatments
2. acquire the most recent and scientifically sound medical information
3. employ social media in clinical practice

CONVENTION SYMPOSIUM 8: "Troubleshooting: When Patients have Problems with Treatment"

Addressing Drug Resistance in Pneumonia
Karl Evans R. Henson, MD, FPCP

The CPAP Intolerant Patient
Rodolfo V. Dizon Jr., MD, FPCP, FPCCP

Complications with Anti-TB Treatment
Jose Hesron D. Morfe, MD, FPCP, FPCCP

01:45pm to 02:45pm, Isla Ballroom 2

OBJECTIVES:
At the end of the session, the participant will be able to:
1. determine drug resistance and the subsequent approach to antimicrobial management
2. identify the factors that affect CPAP adherence and provide solutions
3. address the most common adverse events associated with TB treatment with minimal treatment interruption

13 MARCH (Day 2)

CONVENTION SYMPOSIUM 9:
"Multidisciplinary Team Approach: A resectable lung cancer case with severe COPD" (Panel Discussion)
Anthony V. Manlulu, MD (Philippines) – Thoracic Surgeon
Kwun Fong, MD (Australia) - Pulmonologist
Rex Michael C. Santiago, MD, DPSP (Philippines) – Thoracic Pathologist
Michael Benedict A. Mejia, MD (Philippines) – Radiation Oncologist

01:45pm to 02:45pm, Palawan Room

OBJECTIVES:
At the end of the session, the participant will be able to:
1. appreciate the value of a multidisciplinary approach to lung cancer treatment
2. determine the diagnostic approach in high risk cancer patients
3. identify the necessary immunohistocytochemistry
4. prepare the patient for surgery and minimize morbidity and mortality

CONVENTION SYMPOSIUM 10:
"Ventilator management: from set-up to solving problems"

Choosing between Pressure and Volume Control
Gene Philip Louie C. Ambrocio, MD, FPCP, FPCCP

Waveforms in ARDS Management
Albert L. Rafanan, MD, FPCP, FPCCP

Managing Ventilator Asynchrony
William E. del Poso, MD, FPCP, FPCCP

02:45pm to 3:45pm, Isla Ballroom 1

OBJECTIVES:
At the end of the session, the participant will be able to:
1. understand the principles that underlie the choice of the control mode of ventilation
2. appreciate the value of waveforms in ventilator management
3. identify the causes of ventilator asynchrony and manage them accordingly

Chair: Maria Paz B. Mateo, MD, FPCCP
Co-chair: Christopher P. Cortes, MD, FPCCP

CONVENTION SYMPOSIUM 11:
"Bundles for Better Outcomes: Nutrition in the Critically Ill, Tracheostomy Care & VAP/VAT Prevention"

Nutrition in Critical Illness
Albert B. Albay Jr., MD, FPCP, FPCCP

Tracheostomy Care Bundles
Angelo A. Monroy, MD

VAP bundles
Charles S. Dela Cruz, MD, PhD (USA)

02:45pm to 3:45pm, Isla Ballroom 2

OBJECTIVES:
At the end of the session, the participant will be able to:
1. identify problems of nutrition in the critically ill and address them
2. provide care for tracheostomized patients
3. minimize or prevent ventilator associated pneumonia/infections

CONVENTION SYMPOSIUM 12:
"Beyond Diagnosis- Understanding HIV from the Patient to the Provider Standpoint – A Panel Discussion"

Addressing Concerns with Testing and Handling Disclosure
J. D. Miguel Dela Cruz, MD

Recognizing and Managing HIV Related Infections
Janice C. Caoili, MD, FPCP, FPSMID

What I want from my doctors
Mr. Jabar Esmael

02:45pm to 3:45pm, Palawan Room

OBJECTIVES:
At the end of the session, the participant will be able to:
1. secure well informed consent for HIV testing and provide supportive disclosure
2. collaborate with infectious specialists in the management of HIV related infections
3. understand the concerns of patients and their expectations from their health professionals

TRAINING INSTITUTION REUNION
13 March 2018 (Tuesday)

14 MARCH (Day 3)

SUNRISE SYMPOSIUM 3: MEDICAL ETHICS "Mastering the Duty of Care"
07:30am to 09:00am, Isla Ballroom

Reactor: Mark Henry Y.C. Joven, MD and Victoria Edna G. Monzon, MD

OBJECTIVES:
At the end of the session, the participant will be able to:
1. define the basics of the duty of care.
2. discuss application of the duty of care among respiratory patients
3. promote awareness regarding the duty of care among pulmonologists.

Chairman: Roland M. Panaligan, MD, FPCCP

MASTER PLENARY SESSION 13: "Updates in ARDS Management"

Linus John H. Santo Tomas, MD, MS (USA)
09:00am to 09:30am, Isla Ballroom 1 & 2

OBJECTIVES:
At the end of the session, the participant will be able to:
1. learn the various management strategies for ARDS
2. understand the underlying principles for these strategies

Chair: Rommel DLR Bayot, MD, FPCP, FPCCP

PLENARY SESSION 14: "Communicating with the Filipino Patient"

Gideon Lasco, MD, PhD (Philippines)
09:30am to 10:00am, Isla Ballroom 1 & 2

OBJECTIVES:
At the end of the session, the participant will be able to:
1. understand the unique aspects of communicating with the Filipino patient
2. learn some of the prevailing beliefs in pulmonary medicine

PLENARY SESSION 15: "COPD: Life after an Exacerbation"

Prof. Jadwiga Wedzicha (UK)
10:00am to 10:30am, Isla Ballroom 1 & 2

OBJECTIVES:
1. At the end of the session, the participant will be able to:
2. understand the effects of exacerbations in COPD
3. learn the management approaches to minimize the disability brought on by an exacerbation

PLENARY SESSION 16: FERMIN MANALO MEMORIAL LECTURE
"Pulmonary Couples: Who is the Master of the House?"

Tony T. Dy, MD, FPCP, FPCCP and Ester Jean R. Dy, MD, FPCP, FPCCP
Adelito D. Posas, MD, FPCP, FPCCP and Gemma B. Posas, MD, FPCP, FPCCP

10:30 to 11:30am, Isla Ballroom 1 & 2

OBJECTIVES:
At the end of the session, the participant will be able to:
1. present the insights of a pulmonary couple
2. demonstrate how two pulmonologists married to each other show mastery of both the specialty and their household.

Chairman: Earl Louis A. Sempio, MD, FPCP, FPCCP

Launching of New PCCP Logo
14 March 2018 (Wednesday, 11:30am – 12:00am

LUNCHEON SYMPOSIUM 7:
TITLE: "Linking the upper and the lower airways: how to achieve better asthma control"
SPEAKERS: Dina V. Diaz, MD, FPCP, FPCCP & Camilo C. Roa Jr., MD, FPCP, FPCCP
(Through a CME grant from Mundipharma Distribution GmbH)
12:00nn to 01:30pm, Isla Ballroom 1

14 MARCH (Day 3)

LUNCHEON SYMPOSIUM 8:
TITLE: "Fixed Dose Dual Bronchodilators: An Expert's View"
SPEAKER: Teresita S. de Guia, MD, FPCP, FPCCP (Philippines)
(Through a CME grant from UAP / UNILAB Inc.)
12:00nn to 01:30pm, Isla Ballroom

LUNCHEON SYMPOSIUM 9:
TITLE: "GOLD 2018 Updates: Rationale and Local Implications"
SPEAKER: Prof. Jadwiga Wedzicha (UK)
(Through a CME grant from Novartis Healthcare Philippines, Inc.)
12:00nn to 01:30pm, Palawan Room

PCCP Business Meeting
14 March 2018 (Wednesday), 2PM,
Isla Ballroom 1 &2

INDUCTION OF NEW MEMBERS

CLOSING CEREMONIES
14 March 2018 (Wednesday), 4PM, Isla Ballroom 1 &2

FELLOWSHIP NIGHT
14 March 2018 (Wednesday), 7PM, Isla Ballroom 1 &2

ORAL PRESENTATIONS

A Comparative Study on the Diaphragm Muscle Thickness and Rapid Shallow Breathing Index (RSBI) as a predictor for successful extubation among critically ill adult patients
Geraldine Garcia, MD; Jose Gil Archie Causing, MD; Judy Lin-Ong, MD; Mary Joy P. Ordanza, MD; Chito Paulo A. Sistoza, MD

Comparability of Automated Quantitative Image Cytometry (ClearCyte™) Results of Bronchial Washings with Manual Cytology and Histopathology in the Diagnosis of Lung Cancer
Portia Maria C. Tanyag, MD, FPCP; Sergio N. Andres Jr., FPCP, FPCCP

Development of a validated questionnaire to determine the Knowledge, Attitude and Practices of Internists in determining patient's readiness for weaning and discontinuation from ventilatory support
Grace Anne O. Pancho, MD; Dennis Teo, MD, FPCCP

A Meta-analysis on Indwelling Pleural Catheters vs Pleurodesis in the Management of Malignant Pleural Effusions: A Modern Dilemma
Anjuli May Jaen, MD; Ralph Elvi Villalobos, MD; Irene Rosellen Tan, MD; Ruth Divinagracia, MD, FPCCP

Predictive Equation of Impulse Oscillometry (IOS) Parameters in Middle and Advanced Age Adults with and without Obstructive Lung Disease
Marites Tan-Ang, MD; Dianne Shari M Cabrera, MD

A Comparative Study on the Diaphragm Muscle Thickness and Rapid Shallow Breathing Index (RSBI) as a predictor for successful extubation among critically ill adult patients

Geraldine Garcia, MD; Jose Gil Archie Causing, MD; Judy Lin-Ong, MD; Mary Joy P. Ordanza, MD; Chito Paulo A. Sistoza, MD
St. Luke's Medical Center – Quezon City

ABSTRACT

This was a prospective study that investigated the clinical value of measuring diaphragm muscle thickness versus the usual rapid shallow breathing index (RSBI) in predicting the success in weaning and subsequent extubation of critically ill patients admitted at the critical care units of St. Luke's Medical Center – Quezon City. It included all consenting intubated adult patients admitted at the critical care units who were considered as being ready to wean from assisted mechanical ventilation. Patients underwent ultrasound of the diaphragm muscle to measure its thickness and spontaneous breathing parameters (SBP) to measure rapid shallow breathing index (RSBI). Patients were followed through weaning until successfully extubated from assisted mechanical ventilation, regardless of the ultrasound and RSBI result.

Twenty patients were included in the study: 12 male patients and 8 female patients; with an average age of 68.1 + 13.0 years. The most common reason for intubation was pneumonia (75%). The number of days prior to extubation was 8.7 + 4.3 days. Successful extubation was achieved in 15 patients (75%). The mean duration of mechanical ventilator days in the successful group was 7 days, whereas it was 13 days in the failed group.

ROC curve analysis of RSBI resulted in an area under the curve of 0.587, suggesting that RSBI is not a significant predictor for successful extubation (p=0.6262).

ROC curve analysis determined >3.2mm as the best cut-off score for diaphragm muscle thickness on inspiratory phase [DTM (Insp)]. Moreover, resulting area under the curve of 0.707 indicates that DTM (Insp) can significantly predict successful extubation with a sensitivity of 73.3% and a specificity of 80%.

Comparability of Automated Quantitative Image Cytometry (ClearCyte™) Results of Bronchial Washings with Manual Cytology and Histopathology in the Diagnosis of Lung Cancer

Portia Maria C. Tanyag, MD, FPCP; Sergio N. Andres Jr., FPCP, FPCCP
Department of Pulmonary Medicine, Lung Center of the Philippines

ABSTRACT

Background and Purpose: Manual Cytology is an integral diagnostic tool in evaluation of lung cancer but has several methological limitations. Automated image cytometry is a method of quantitative analysis of nuclear structure and DNA content of exfoliative cells. Automation in cytologic assessment may reinforce cytological analysis diagnostic pathway in lung cancer diagnosis. Our study aimed to compare diagnostic quality of Automated Quantitative Image Cytometry (ClearCyte™) with manual cytology of bronchial washings and histopathology in the diagnosis of lung cancer for patients suspected with lung malignancy seen at the Lung Center of the Philippines.

Methods: A total of 112 patients suspected for lung cancer seen in Lung Center of the Philippines underwent fiber optic bronchoscopy and bronchial washing were collected. Specimen per patient were divided into 2 portions sent for manual cytology and ClearCyte™ automated quantitative image cytometry for analysis. Biopsy was done during bronchoscopy or as additional diagnostic procedure.

Results: Out of the 112 eligible patients suspected with lung cancer 83% was confirmed with histopathology. ClearCyte™ automated quantitative image cytometry were positive for atypical cells in 5 out of the 112 specimens, negative for 71, and no detectable analyzable epithelial cells in 36 cases. ClearCyte™ automated quantitative image cytometry showed 10.6% sensitivity, 100% specificity compared to 36% sensitivity, 86% specificity of manual cytology and 93% sensitivity, 50.0% specificity of manual cytology (cell block). ClearCyte™ automated quantitative image cytometry showed 100% specificity for diagnosis of non-small cell lung cancer (NSCLC), adenocarcinoma, and small cell lung cancer (SCLC).

Conclusion: ClearCyte™ automated quantitative image cytometry of bronchial washing showed 10.64% sensitivity, lower for both manual cytology and manual cytology (cell block), but higher specificity of 100% compared to both. Compared to manual cytology of bronchial washing, ClearCyte™ has 100% specificity for NSCLC, adenocarcinoma, and SCLC.

Development of a validated questionnaire to determine the Knowledge, Attitude and Practices of Internists in determining patient's readiness for weaning and discontinuation from ventilatory support

Grace Anne O. Pancho, MD; Dennis Teo, MD, FPCCP
Section of Pulmonary Medicine - Manila Doctors Hospital

ABSTRACT

Background: The need for mechanical ventilation remains one of the most common reasons for admission to the intensive care unit (ICU). It carries a significant burden in terms of mortality, morbidity as well as the cost of its principal treatment. It has been estimated that as much as 42% of the time that a medical patient spends on a mechanical ventilator is during the discontinuation process. Several studies were already done to describe the current practice of weaning. However, the reasons for the variability were not yet completely understood.

Methods: Validation of the KAP survey was done by Key Informant Interview (KII) consisting of nine (9) Manila Doctors Hospital Internal Medicine consultants. The KAP questionnaire was administered to a pilot group (n=44). Cronbach's alpha was used to measure the internal consistency of the set of questions. The association of selected determinants with weaning and ventilator discontinuation practices was analyzed using Fisher's Exact Test of Association.

Results: The calculated Cronbach's alpha for the set of items measuring knowledge and attitude on the recommended practices on weaning and discontinuation from ventilator support was 0.6019 and 0.36 respectively. The calculated Cronbach's alpha for the set of items measuring weaning and ventilator discontinuation practices was 0.82. Only the level of participation in weaning was found to be associated with weaning and ventilator discontinuation practices.

Conclusion: The resulting Cronbach's alphas (0.60) for knowledge and attitude (0.36) were far from the acceptable range (0.8 and above). The calculated Cronbach's alpha for practices was 0.82 which is within acceptable range. The attitude of the respondents in determining patient's readiness for weaning and discontinuation from ventilatory support is variable. The level of participation in weaning was found to be associated with good weaning and ventilator discontinuation practice.

A Meta-analysis on Indwelling Pleural Catheters vs Pleurodesis in the Management of Malignant Pleural Effusions: A Modern Dilemma

Anjuli May Jaen, MD; Ralph Elvi Villalobos, MD; Irene Rosellen Tan, MD; Ruth Divinagracia, MD, FPCCP

Section of Pulmonary Medicine, Department of Medicine, University of the Philippines-Philippine General Hospital

ABSTRACT

RATIONALE: Pleural effusion is a common sequela of a malignant disease which signify a poor prognosis. Patients with pleural effusions often present with dyspnea, which in turn impair their quality of life. Efforts to alleviate dyspnea, limit hospitalization days and reduce the recurrence of the effusion should be done. Recently, studies have shown that indwelling pleural catheters (IPC) can also be done even to patients who fit the criteria for pleurodesis as the goal has shifted from treating the patient by radiologic evidence of pleural effusion to patient symptoms and quality of life.

METHODS: We conducted an extensive search for published studies that compare pleurodesis with indwelling pleural catheters as the management for malignant pleural effusion. Eligibility and bias assessments were done by the authors. The primary outcome was the control of effusion. The secondary outcomes were length of hospital stay, dyspnea, quality of life, chest pain and complication rates.

RESULTS: Twenty four studies were initially screened on December 2017. However, only ten studies with a total of 1333 met the inclusion criteria. The studies were then analyzed and the results are as follows: Patients who underwent indwelling pleural catheter insertion had significantly decreased length of hospital stay by 3.83 days (95% CI, -5.83, -1.83), decreased effusion related hospital days by 4.83 days (CI 95% -8.99, -0.66) and less loculations or recurrence of pleural effusion that required re-intervention by 41% (CI 95%, 0.34, 0.77). There is a trend in favor of IPC showing less short-term dyspnea by 38% (RR 0.62, [CI 95% 0.31, 1.27]), less long-term dyspnea by 22% (RR 0.78 [CI 95%, 0.53, 1.14]), less complications RR 0.78 (CI 95% 0.47, 1.31) but was statistically not significant. Pleurodesis, however, had better quality of life with a mean difference of 2.02 (95% CI -5.41, 9.45) and less empyema rates (RR 1.7, [95% CI, 0.77, 3.73]) but was not statistically significant. Lastly, chest pain (RR 1.05 [95% CI, 0.42, 2.59]) and survival with a mean difference of 0.00 (95% CI, -1.34, 1.34) barely had a difference between the two groups.

CONCLUSIONS: Patients who underwent indwelling pleural catheter insertion significantly had less hospital days and more control of effusion but showed a heterogenous population. There is also a trend towards decreased short-term dyspnea, long-term dyspnea, and complication rates in favor of IPC. Pleurodesis, however, showed a trend towards better quality of life and less empyema rates. In summary, pleural catheter insertion is the preferred therapeutic intervention for malignant pleural effusions.

Predictive Equation of Impulse Oscillometry (IOS) Parameters in Middle and Advanced Age Adults with and without Obstructive Lung Disease

Marites Tan-Ang, MD; Dianne Shari M Cabrera, MD
Institute of Pulmonary Medicine – St. Luke's Medical Center Quezon City

ABSTRACT

RATIONALE: Pleural effusion is a common sequela of a malignant disease which signify a poor prognosis. Patients with pleural effusions often present with dyspnea, which in turn impair their quality of life. Efforts to alleviate dyspnea, limit hospitalization days and reduce the recurrence of the effusion should be done. Recently, studies have shown that indwelling pleural catheters (IPC) can also be done even to patients who fit the criteria for pleurodesis as the goal has shifted from treating the patient by radiologic evidence of pleural effusion to patient symptoms and quality of life.

METHODS: We conducted an extensive search for published studies that compare pleurodesis with indwelling pleural catheters as the management for malignant pleural effusion. Eligibility and bias assessments were done by the authors. The primary outcome was the control of effusion. The secondary outcomes were length of hospital stay, dyspnea, quality of life, chest pain and complication rates.

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CONCLUSIONS: Patients who underwent indwelling pleural catheter insertion significantly had less hospital days and more control of effusion but showed a heterogenous population. There is also a trend towards decreased short-term dyspnea, long-term dyspnea, and complication rates in favor of IPC. Pleurodesis, however, showed a trend towards better quality of life and less empyema rates. In summary, pleural catheter insertion is the preferred therapeutic intervention for malignant pleural effusions.

POSTER PRESENTATIONS

Accuracy of Gas Exchange Measurements as Predictors Of Early Successful Weaning Among ICU Patients of Philippine Heart Center: A Prospective Cohort Study
John Ray T. Galamay, MD, FPCP; Rommel D. Bayot, MD, FPCCP; Ma. Encarnita B. Limpin, MD, FPCCP; Aileen V. Guzman-Banzon, MD, FPCCP

Airflow obstruction among previously treated pulmonary tuberculosis non-smokers in Manila Doctors Hospital
Margarita Chavez, MD; Jose Sarenas III, MD, FPCCP

Assessment of inhalational technique among adult patient with obstructive airway disease at the outpatient department of a tertiary level hospital in the Philippines
Ma. Kriselda Karlene G. Tan, MD; Norhanah P. Manua, MD; Camilo C. Roa, Jr., MD, FPCCP; Manuel C. Jorge, II, MD, FPCCP

Screening for Osteoporosis in Male Chronic Obstructive Pulmonary Disease Patients on Long-term ICS Use vs Non-ICS Users at the OPD of the Lung Center of the Philippines
Mari Chris H. Mercado, MD, FPCP; Glynna Ong-Cabrera, MD, FPCCP

Prognostic utility of the LENT Score in Predicting Survival among Patients with Malignant Pleural Effusion admitted at the Chinese General Hospital and Medical Center: A Cohort Study
Janiza J. Villalon, MD FPCP; John Noel U. Chan, MD, FPCCP

Relationship of pre-operative cardiopulmonary exercise testing with in-hospital outcomes and length of stay of patients who underwent major surgery in a tertiary hospital in the Philippines: A descriptive case series study
Ma. Janeth T. Samson, MD; Geraldine D. Garcia, MD; Rioloida V. Diola, MD

Safety and benefits of beta-blockers in chronic obstructive pulmonary disease: a review of current evidence and meta-analysis
Ralph Elvi M. Villalobos, MD; Irene Rosellen Tan, MD; Ruth Marie R. Divinagracia, MD, FPCCP

The Efficacy of the Ventilator Bundle in Preventing Ventilator-Associated Pneumonia among ICU Patients in the Manila Doctors Hospital
Cloudine Denise A. Tumulak, MD; Albert Albay Jr., MD, FPCCP

Validation of the Ottawa risk scale in identifying COPD in exacerbation patients seen in the emergency department at risk of serious adverse event
Benjamin G. Hernandez, Jr, MD; Eloisa S. De Guia, MD, FPCCP

Adherence, enablers and barriers to the implementation of the ventilator associated pneumonia bundle in the intensive care units at the Makati Medical Center
Cyrus Gerald P. Pasaporte, MD; Norman L. Maghuyop, MD, FPCCP

Accuracy of Gas Exchange Measurements as Predictors of Early Successful Weaning Among ICU Patients of Philippine Heart Center: A Prospective Cohort Study

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ABSTRACT

BACKGROUND: Rapid weaning and extubation is an important part in fast-track recovery of the critically-ill patients. Gas exchange measurements such as inspired–expired oxygen concentration difference ($[I–E]O_2$) and end-tidal carbon dioxide concentration ($PETCO_2$) are useful in identifying patients who are likely to succeed in liberation from mechanical ventilation.

METHODOLOGY: This was a prospective cohort study done at the intensive care unit (Surgical ICU, Medical ICU, Coronary Care Unit) of the Philippine Heart Center. Patients that were intubated, mechanically ventilated and were admitted in ICU were included in the study. Both standard and study (ie, $[I–E]O_2$ and $PETCO_2$) weaning assessment protocols were done on a daily basis. Weaning were classified as successful if the patient was able to maintain spontaneous breathing for 48 hours after extubation. Sensitivity, Specificity, positive predictive value (PPV) and negative predictive value (NPV) were used to determine the diagnostic accuracy of gas exchange measurement in predicting optimal outcome. All statistical tests were two tailed test. Shapiro-Wilk was used to test the normality of the continuous variables. A p-value of ≤ 0.05 was considered significant.

RESULTS: There were 290 patients included in the study. A total of 210 patients who were successfully weaned from the mechanical ventilator, 142 (67.6%) males and 68 (32.3%) females. The probability of detecting weaning success using $[I–E]O_2$ and $PETCO_2$ is 92.92% and 90.35% respectively, while the probability of detecting weaning failure is 100% and 93.55% respectively. The ability of these measurements to detect weaning success in the general population were 80% in ([I–E]O2) and 72.5% in PETCO2. Based on the sensitivity and specificity of these gas exchange measurements, a cut-off value of $\geq 4.6\%$ in $[I–E]O_2$ and ≥ 4 kPa in $PETCO_2$ were deteremined.

CONCLUSION: According to our results, $[I-E]O_2$ and $PETCO_2$ measurement provides an accurate predictor of weaning in mechanically ventilated patients when the best cut-off values were applied.

Airflow obstruction among previously treated pulmonary tuberculosis non-smokers in Manila Doctors Hospital

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ABSTRACT

Cigarette smoking is widely recognized as the most important noxious particle and risk factor for chronic obstructive pulmonary disease (COPD). Recent studies however recognize that one-fourth to a third of all COPD cases occurs in non-smokers, and suggest that airflow obstruction may develop secondary to pulmonary tuberculosis (PTB), independent of smoking history.

Post-PTB non-smokers were recruited from Manila Doctors Hospital OPD, and spirometry patterns were compared to radiological evidences of PTB. Airflow obstruction was seen in 9 of the 18 subjects recruited, with variable FEV1 ranges. Two patients with no radiological residual evidence of PTB still showed severe to very severe airflow obstruction on spirometry. Due to the small number of subjects recruited, further statistical analysis could not be done and more robust studies are needed.

Assessment of inhalational technique among adult patient with obstructive airway disease at the outpatient department of a tertiary level hospital in the Philippines

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ABSTRACT

Objective: This study evaluated the inhaler technique of patients diagnosed with asthma or Chronic Obstructive Pulmonary Disease (COPD) at the Outpatient Department of a Tertiary level hospital in the Philippines

Methods: Prospective observational cross-sectional study on patients diagnosed with asthma or COPD, prescribed with an inhaler device for at least one month, at the Outpatient Department of a Tertiary level hospital in the Philippines was done last November 2017. The use of MDIs (metered-dose inhaler), and DPIs (dry powder inhaler) such as Diskus, Aerolizer or Handihaler, and Turbuhaler were assessed. Critical error was defined as incorrectly performed pre-determined essential step. The demonstration was recorded on video, and scored by 2 independent assessors trained on correct inhaler technique.

Results: Patients (n=67) recruited and completed 83 inhalational technique demonstrations. There were more critical errors using MDI (84.62%) compared to DPI 72.41%, although not statistically significant. The most frequent errors with MDIs were steps involving hand-breath coordination. The most frequent errors with DPIs were steps requiring forceful and deep inhalation, and need to hold breath for 5 to 10 seconds after inhalation.

Conclusion: Majority of patients committed critical errors in use of their inhaler devices. Proper education by health care providers, and regular reassessment of the patients' inhaler technique at every clinic visit are important to maximize the therapeutic efficacy of inhaler medication.

Screening for Osteoporosis in Male Chronic Obstructive Pulmonary Disease Patients on Long-term ICS Use vs Non-ICS Users at the OPD of the Lung Center of the Philippines

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ABSTRACT

Purpose: Chronic obstructive pulmonary disease (COPD) remains one leading causes of disability and death worldwide and is widely associated with other diseases. Osteoporosis is a significant co-morbidity affecting patients with advanced COPD, wherein inhaled corticosteroid use is a cornerstone of therapy. Its long-term use has been linked to the development of osteoporosis.

Methods: A prospective cross sectional research design was used to analyze the data. A total of 135 Filipino male COPD patients of the Lung Center of the Philippines Out Patient Department was included in the study. A peripheral bone densitometer utilizing quantitative ultrasound technique was used to obtain the bone density scores of the patients. Charts were reviewed and data pertinent to the study were gathered including age, FEV1/FVC, co-morbidities, body mass index, use of inhaled corticosteroids (ICS), medications smoking history and nutritional status. Based on T-scores obtained using the World Health Organization definition, patients were labeled normal (T-score -1.0 and above), osteopenic (T-score between -1.0 and -2.5) and osteoporotic (T-score <-2.5).

Results: The prevalence of osteoporosis of COPD patients on inhaled corticosteroids was 29%, which is lower than most countries. The mean age of those with osteoporosis was 69 and 64 for those without osteoporosis. The clinical profile of COPD patients on ICS and not on ICS was comparable. Among the clinical profile, age was the only factor observed to be associated with osteoporosis (p value=0.0076). ICS use was not noted to be associated with osteoporosis.

Conclusion: Thirty-eight (38) out of the 135 patients were noted to have osteoporosis based on a T-score obtained through the use of a peripheral bone densitometer. Thirty-one of these patients noted to have osteoporosis were on ICS. The prevalence of osteoporosis in patients on ICS was 29%. Age was the only factor observed to have an association with osteoporosis.

Prognostic utility of the LENT Score in Predicting Survival among Patients with Malignant Pleural Effusion admitted at the Chinese General Hospital and Medical Center: A Cohort Study

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ABSTRACT

Background: Malignant pleural effusion(s) (MPEs) are common in patients with neoplastic disease. Only a few data exist that guide clinicians in making important therapeutic decisions in its management. The LENT prognostic score is the first validated risk stratification system in MPEs that is meant to assist physicians in (1) predicting the survival of patients and (2) determining the extent of treatment options. Our study aims to determine the prognostic value of the LENT score in patients with MPEs admitted at the Chinese General Hospital and Medical Center.

Methodology: This is a retrospective cohort study reviewing medical records of patients with MPEs diagnosed at Chinese General Hospital and Medical Center. LENT risk stratification was determined based on patient variables and characteristics. (1) The survival time was calculated from the date of diagnosis of MPE to death. (2) The median survival was computed per LENT risk categories. Diagnostic values were computed to determine the predicting ability of LENT prognostic system, area under the curve (AUROC). All test of significance is at 5%. Cox-hazard regression was used to determine other factors affecting overall survival in patients with MPE. Statistical comparisons were performed using Kaplan-Meier method with log-rank test.

Results: Eighty-eight patients were included in the study; 63.6% female and 36.4% male. The average age is 61.66 years old. The most frequently diagnosed tumors were lung cancer (44.3%), breast cancer (25.0%), and gastrointestinal cancer (10.2%). The average survival time is 4.60 months. The age group (X^2=3.864, p=0.049), tumor type (X^2=29.996, p<0.001), tumor risk category (X^2=14.624, p=0.001), ECOG PS score (X^2=19.166, p<0.001), and serum NLR (X^2=13.281, p<0.001) significantly affect the survival distributions of patients with MPE. Almost 60% of patients have moderate risk LENT scores, 37.5% high risk and only 3.4% low risk. The average survival for moderate risk is 6.09 months (CI 4.97, 7.22), 1.58 months for high risk (CI 1.07, 2.08).

Conclusion: The age group, tumor type, tumor category, ECOG PS score, and serum NLR significantly affect the survival of patients with MPE. A high LENT score has lower survival rates while a low LENT score has a higher chance of surviving. Patients with moderate risk LENT score have a median survival of 6.09 months after initial diagnosis while patients with high risk LENT score have a lower median survival time of 1.58 months. The LENT score is a superior indicator of survival than the ECOG PS score. It is easy to calculate and has a clinically relevant prognostic scoring.

Relationship of pre-operative cardiopulmonary exercise testing with in-hospital outcomes and length of stay of patients who underwent major surgery in a tertiary hospital in the Philippines: A descriptive case series study

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ABSTRACT

This retrospective descriptive chart review study that involves all patients who have undergone cardiopulmonary exercise test prior to surgery wherein their charts were retrieved from January 2013 to April 2017 at SLMC-QC and April 2015 to April 2017 at SLMC-GC. The data collected on pre-operative patients were the following, namely, cardiopulmonary exercise testing (CPET) parameters (Peak VO2, VE/VCO2 at AT, and Anaerobic Threshold) and correlated with in-hospital mortality, post operative morbidity survey, and length of hospital stay.

Eleven patients underwent CPET prior to major surgery were included in the study. They had the following profiles: average age of 60.64 years old, 63.6% were males, with Peak VO2 (ml/kg/min) of 13.21±4.27, with AT (%) of 33.73±9.37, with VE/VCO2 at AT of 35.64±4.06, length of hospital stay of 7.00±4.9 days. One patient died.

Of those who were alive, their CPET parameters were as follows: peak VO2 (ml/kg/min) of 12.81, AT (%) of 33.50, and VE/VCO2 at AT of 35.70. Meanwhile, the deceased patient had Peak VO2 (ml/kg/min) of 17.20, AT (%) of 36.00, and VE/VCO2 at AT of 35.00. Only VE/VCO2 at AT was significantly correlated with patients' length of hospital stay wherein the higher the VE/VCO2 at AT, the longer the length of stays and vice versa (r=0.659, p=0.027).

Safety and benefits of beta-blockers in chronic obstructive pulmonary disease: a review of current evidence and meta-analysis

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ABSTRACT

BACKGROUND AND OBJECTIVES: Beta-blockers clearly decrease mortality among patients with cardiovascular disease. Despite current recommendations that support the use of beta-blockers in COPD, its use remain to be low because of concerns of triggering bronchoconstriction and exacerbations, and possibly increase mortality. Our review therefore appraised current evidence and we performed a meta-analysis on the effect of beta-blockers in the reduction of all-cause mortality and exacerbations among COPD patients.

METHODS: This is a review and meta-analysis of current studies that examined mortality between patients with COPD who were and were not given beta-blockers. All studies that were included were either prospective or retrospective cohort studies (there are currently no available randomized controlled trials). The primary outcome is all-cause mortality. Other outcomes were comparison between mortality and cardio-selectivity of beta-blocker, and COPD exacerbations.

RESULTS: Twenty-two studies with a total population of 98,813 COPD patients were identified and met the inclusion criteria for analysis. There is a trend toward a reduction in mortality RR 0.79 (0.58-1.06) among COPD patients given beta-blockers compared to those who were not. In examining the effects of cardioselectivity, patients given cardioselective beta-blockers had a trend toward lower mortality RR 0.83 (0.5-1.20) versus non-selective beta-blockers (which showed a trend toward increased mortality), RR 1.12 (0.71-1.75). Interestingly, the beta-blocker group had a 12% significantly lower exacerbations RR 0.88 (0.79-0.98) compared to those not given beta-blockers. All outcomes were significantly heterogenous.

CONCLUSIONS: In patients with COPD and cardiovascular comorbidities, the use of non-selective beta blockers appear to be safe and confer trends toward reduction of all-cause mortality compared to not giving beta blockers. Rates of exacerbation were also lower among patients given cardioselective beta-blockers. It should therefore be emphasized to medical professionals that cardioselective beta blocker therapy can be safely prescribed and given to COPD patients, provided that adequate monitoring and observation is coupled with standard medical care. Further studies to determine proof (RCTs) are required to firmly establish of this recommendation.

The Efficacy of the Ventilator Bundle in Preventing Ventilator-Associated Pneumonia among ICU Patients in the Manila Doctors Hospital

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ABSTRACT

Ventilator-associated pneumonia (VAP) is one of the most common hospital-acquired infections in the intensive care unit (ICU) resulting in high morbidity, mortality, and expenses. This led to the implementation of the VAP bundles of care since 2004. In the Manila Doctors Hospital, the said bundle was implemented in May 2015. Hence this study aimed to determine the efficacy of this bundle in lowering the incidence of VAP. A total of 52 mechanically ventilated ICU patients admitted from April to September 2016 (Bundle Group) were observed and compared with data taken [via chart review] from 48 mechanically ventilated ICU patients admitted from September 2014 to February 2015 (Baseline Group). The incidence of VAP, duration of mechanical ventilation, ICU and hospital stay in these two groups were compared. The Baseline group had a higher incidence of VAP, but this did not reach significance. This was largely attributed to the performance of almost 4 out of the 6 components of the bundle even prior to their implementation as a bundle. The Bundle group had a longer duration of mechanical ventilation, ICU and hospital stay, but this also did not reach significance. This was possibly due to the lack of specificity to VAP of these secondary outcome measures used. Compliance of the ICU team in facilitating the components of the bundle was found to be incomplete for 23 days out of the 6 months duration of monitoring. Hence, dissemination of the importance and existence of the bundle is highly recommended.

Validation of the Ottawa risk scale in identifying COPD in exacerbation patients seen in the emergency department at risk of serious adverse event

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ABSTRACT

BACKGROUND: Chronic Obstructive Pulmonary Disease (COPD) is a prevalent disease worldwide and accounts for a substantial economic and social burden. Exacerbation of COPD is a common cause of hospital admission. Physicians often encounter challenges in deciding whether to admit or discharge COPD patients treated at the emergency room. The Ottawa risk scale is a scoring system that incorporates clinical variables together with laboratory parameters that can be used to predict risk of adverse events such as mortality, need for ICU admission, intubation, development of myocardial infarction and return to emergency room. This study aims to validate the Ottawa risk score that could aid physicians with difficult decision about hospital admission for patients with acute exacerbation of COPD at the emergency department.

METHODS: A prospective observational cohort study of patients presenting with acute exacerbation of COPD at the emergency department of Veterans Memorial Medical Center was conducted. Components of the Ottawa risk score were obtained and risk stratification was done following the scoring system. All patients were followed up for all cause mortality for 30 days, or any of the following events within 14 days of the index emergency department visit: admission to ICU, endotracheal intubation or need for non-invasive ventilation, development of myocardial infarction or for patients discharged after initial visit, return to emergency department for any related medical problem. Validation was assessed by measuring calibration by x^2 goodness of fit test and discrimination ability by building a receiver operating characteristic curve and calculating the area under the curve.

RESULTS: Of the 203 patients included in the study, 38.4% (n=78) developed adverse event. The average Ottawa risk score across the population was 3.67. 28.6% (n=58) were considered low risk, 19.7 (n=40) were medium risk, 10.8% (n=22) were high risk and 40.9% (n=83) were very high risk. The x^2 goodness of fit test indicated an acceptable fit for the model (x^2=15.04 p=0.10). The AUC was 0.95 representing an excellent discriminative ability of the scoring system.

CONCLUSION: Ottawa risk scoring system can identify patients at risk for adverse outcome. Patient stratified as low to medium risk (risk score of 0 to 2) has a 2.6% risk of developing serious adverse event and thereby can be discharged from the emergency department after prompt treatment.

Adherence, enablers and barriers to the implementation of the ventilator associated pneumonia bundle in the intensive care units at the Makati Medical Center

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ABSTRACT

Background: Ventilator Associated Pneumonia (VAP) bundle has been implemented since 2011 in Makati Medical Center. After it was implemented, we observed there was a significant decrease of the incidence of Ventilator Associated Pneumonia in all intensive care units, although not absolutely diminished. We sought to determine the adherence rate, enablers, and barriers to the implementation of the VAP bundle in the Intensive Care Units at the Makati Medical Center.

Objectives: To determine the adherence rate, enablers, and barriers to the implementation of the VAP bundle in the Intensive Care Units at the Makati Medical Center.

Methods: This prospective cross sectional study was conducted at the Intensive Care Units of Makati Medical Center from June 2016 to December 2016. Spot check monitoring done to nurses with patients who were intubated on how they performed the VAP bundle. The chart was checked for the compliance of Medical ICU officers if they ordered the VAP bundle and a survey was administered to measure self report adherence to each interventions, guideline quality and contextual factors.

Results: A total of 45 nurses participated in the survey; in general, all had positive attitudes and reported adhering to the VAP bundle guidelines. However, 39% of respondents have less knowledge with the initial ventilator mode in settings for Spontaneous Breathing Trials (SBT). There were 25% who have less knowledge with the policy and guidelines even the practicality of the policy or guidelines. Medical Intensive Care Unit officers were able to practice VAP care bundle by assessing readiness to extubate (97.70%) and complete VAP bundle protocol order (88.89%). Universal precaution of hand hygiene was not regularly performed by staff nurses (60%).

Conclusion: We had good results in terms of attitudes towards the VAP bundle, but improvement is needed in terms of knowledge and practices. Therefore, interventions geared for increasing adherence to the VAP bundle should focus on training to increase knowledge, and administrative policies that would support each component of the VAP bundle practice.

PEER-REVIEWED ARTICLES

CASE REPORT

Unmasking Mutation: A Rare Case of Combined Small Cell and Large Cell Carcinoma

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ABSTRACT

We report a case of a 76 year-old female, 90 pack-year smoker with no known comorbidities, presenting with chronic cough associated with significant weight loss, anorexia, and on and off headaches. She had a history of Pulmonary Tuberculosis treatment 50 years ago without a family history of carcinomas. On initial imaging, a pulmonary mass on the right upper lobe was seen on chest computed tomography (CT) scan. Histopathologic reading of the biopsy showed Chronic Granulomatous Inflammation, hence she was treated initially as a case of Pulmonary Tuberculosis. Despite anti-Koch's treatment, there was progression of pulmonary lesions, hence a second biopsy was done Results revealed a Small Cell Carcinoma, Extensive Stage Disease, Epidermal Growth Factor Receptor (EGFR) negative on further work-up. She underwent 6 cycles Carboplatin+ Etoposide with 10 sessions of Thoracic Radiation. Surprisingly, after the course of both chemotherapy and radiation therapy, there was a growth of a right anterior chest wall mass, with an intriguing histopathologic result of Metastatic Non-Small Cell Carcinoma, Poorly Differentiated Adenocarcinoma in a known Small Cell Carcinoma. Further, immunostaining studies revealed positive for TTF-1, CK5/6 and Chromogranin stains, which was finally signed out as Neuroendocrine Tumor, Combined Small Cell and Large Cell Carcinoma.

INTRODUCTION

Lung Cancer remains the leading cause of cancer morbidity and mortality for both men and women. Among the types of lung carcinomas, small cell lung cancer (SCLC) represents 13-15% of newly diagnosed lung cancer per year.

Among the types of small cell carcinoma, combined small cell carcinoma (C-SCLC) is a multiphasic form of lung cancer with complex histopathogenesis. The existence of neoplasms with mixed small cell and non-small cell differentiation is now being recognized by both pathologists and clinicians. According to the 2015 World Health Organization (WHO) Classification, Combined Small Cell Carcinomas are a subset of Neuroendocrine Tumors, of which comprehensive incidence statistics are still unavailable. Due to its rarity, very little is known about the clinical characteristics and response to therapy of these tumors.

Combined Small Cell Lung Carcinoma (C-SCLC) is a rare subtype of Small Cell Carcinoma. It is an admixture of a small cell carcinoma with one (or more) components of a non-small cell lung carcinoma, with no distinct clinical manifestation from the other small cell carcinomas. Treatment and prognosis is mainly dictated by the small cell carcinoma histology, hence distinct histopathologic examination is of utmost importance since management for a pure non-small cell carcinoma is clearly different from the small cell carcinoma variants admixed with non-small cell histology.

We present a case of C-SCLC and provide

explanation on the diagnostic dilemma encountered. This paper also aims to discuss the incidence, histopathogenesis, treatment and management, and prognosis of patients with Combined Small Cell Carcinoma.

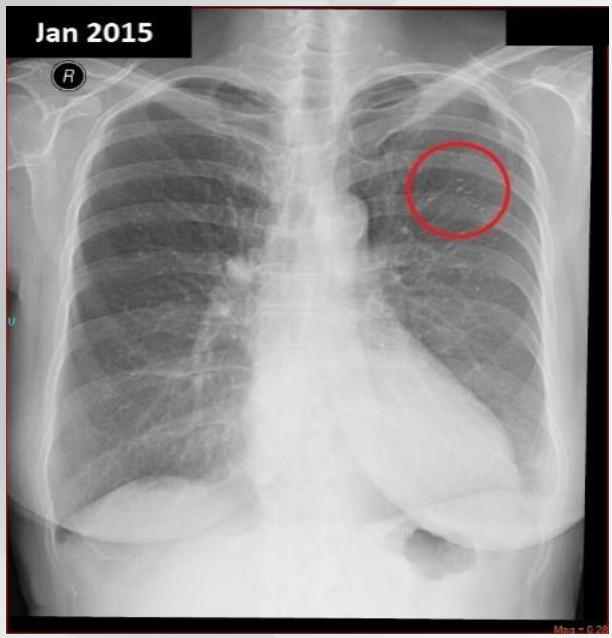
THE CASE

The patient was a 76 year old female, single, from Makati City who was admitted due to chronic cough with a pulmonary mass. She had no known comorbidities and no previous surgeries. She was treated for Pulmonary Tuberculosis 50 years ago. Heredo-familial diseases only include diabetes mellitus. No family history of any carcinoma was noted. She was a cigarette smoker with a 90-pack year smoking history, an occasional alcoholic beverage drinker and denied illicit drug use.

The history of present illness started 23 months prior to admission, presenting with a chief complaint of cough described as non-productive for one month with shortness of breath on moderate exertion. This was not associated with fever, hemoptysis, and weight loss. She consulted her attending physician wherein chest radiograph findings taken in April 2014 and in January 2015 showed stable tiny calcific nodules with no active parenchymal disease in the left upper lobe (Figure 1). Hence she was started with unrecalled antibiotics and antitussive medications which she claimed she was compliant with.

Due to persistence of symptoms, high resolution chest CT Scan (Figure 2) was requested and revealed a lobulated non-calcified mass with irregular margins measuring (4.4 x 3.6 x 4.6 cm) in the anterior segment of the right upper lobe (RUL); there was an irregularly shaped nodule measuring 1.1 x 0.8 cm in the anterior basal segment of the right lower lobe (RLL). There were several subcentimeter calcified and non-calcified nodules seen in the left upper lobe most likely granulomas. Core biopsy of the RUL lung mass had a histopathologic report of Chronic Granulomatous Inflammation with Interstitial Pneumonia and Fibrosis (Figure 3). Both sputum and tissue biopsy specimens were sent for Acid-Fast Bacilli (AFB)

Figure 1. Postero-anterior chest radiograph showed stable left upper lobe tiny calcific nodules with no active parenchymal disease



smears, tuberculosis culture, MTB Gene Xpert testing and Gram stain and cultures which revealed negative results. She was started with anti Koch's therapy (Rifampicin 150 mg + Pyrazinamide 400mg + Ethambutol 275mg + Isoniazid 75mg) 4 tablets once daily.

On the second month of anti-Koch's therapy, a repeat chest CT scan (Figure 4) showed an apparent interval decrease in the size of the lobulated non-calcified mass with irregular borders in the anterior segment of the right upper lobe. The perceived regression in size was due mainly to clearing of the peripheral obstructive pneumonitis. The mass measuree 3.6 x 2.2 cm. And the right lower lobe nodule slightly increased to 1.6 x 1.0 from 1.0 x 0.7 cm. The patient finished the six-month course of anti-Koch's treatmet.

Fifteen months prior to admission, despite the anti-Koch's treatment, the patient still complained of cough with exertional shortness of breath, now with significant weight loss of more

Figure 2. High Resolution Computed Tomography (HRCT) scan of the chest, showed a lobulated non calcified mass with irregular margins measuring (4.4 x 3.6 x 4.6 cms) in the anterior segment of the RUL; with an irregularly shaped nodule measuring 1.1 x 0.8 cms in the anterior basal segment of the right lower lobe. There were several subcentimeter calcified and non-calcified nodules seen in the left upper lobe most likely granulomas.

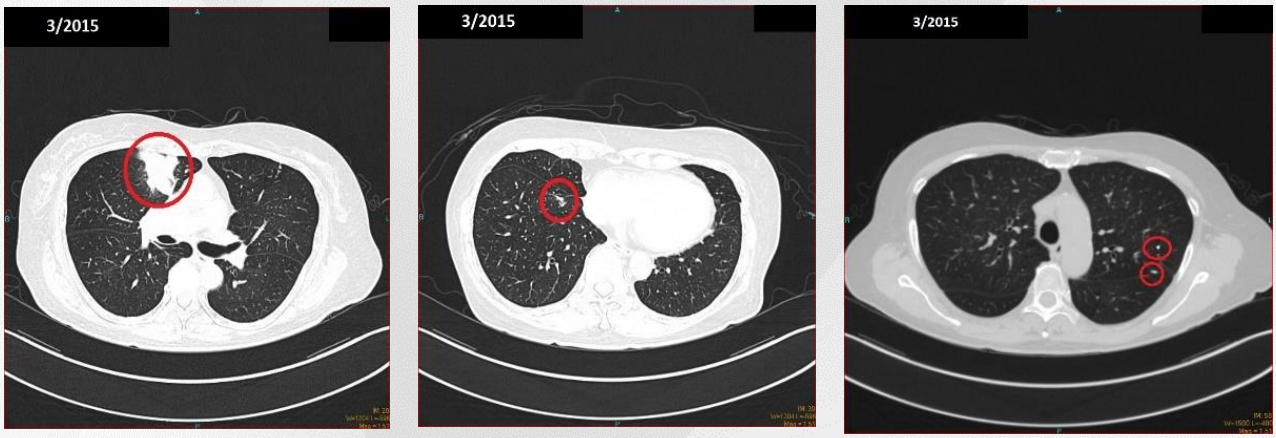
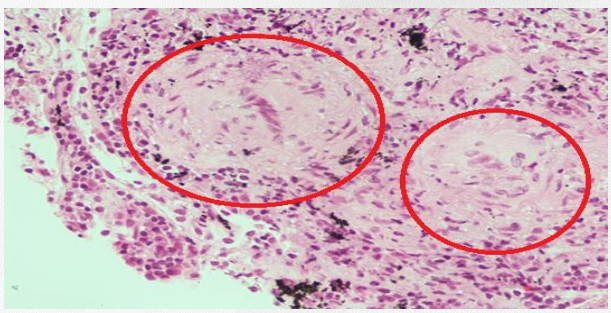


Figure 3. Histopathology showing chronic granulomatous inflammation with interstitial pneumonia and fibrosis.



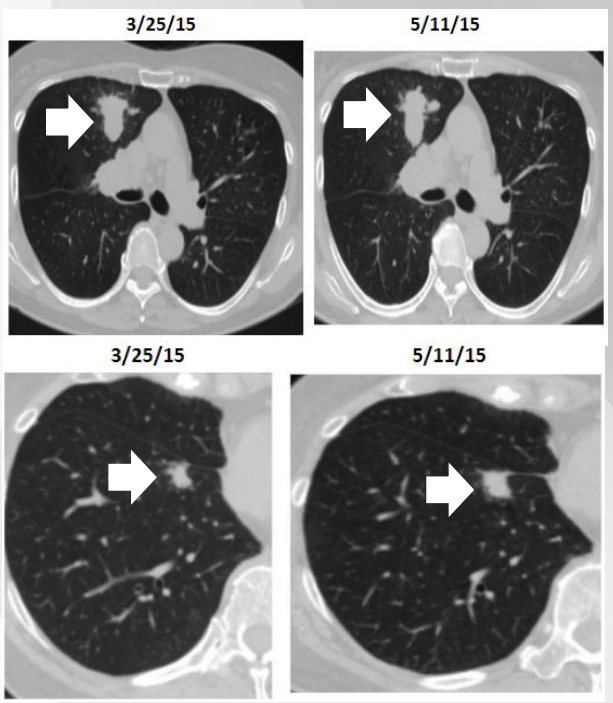
than 30 lbs in three months and anorexia. A chest CT scan (Figure 5) was done which revealed an interval progression of the right upper lobe mass and mediastinal lymphadenopathy, situated in the right prevascular and right paratracheal regions, measuring 7.1 x 1.3 x 7.2 cm. The mass lesion extended into the mediastinum which appeared to encase the right superior vena cava, distal right pulmonary artery, right upper lobe bronchus and bronchus intermedius. There was also progression in size of the right lower lobe nodule and some pulmonary nodules in the left lower lobe with bilateral pleural effusion, more in the right lung. An interval appearance of a prominent right supraclavicular lymph node measuring 1.1 cm short axis and the development of sclerotic changes in vertebral body T12 consistent with osseous metastasis were also reported.

At this time, another CT guided core biopsy of the now enlarged right upper lobe mass was done, wherein histopathologic examination revealed a Small Cell Carcinoma (Figure 6). On further work up it was staged as Extensive Disease (Stage IV-T4N3M1b). EGFR assay was negative, and imaging of the brain and abdomen were negative for other sites of metastases. Positron Emission Tomography (PET) (Figure 7) findings showed hypermetabolic right upper lung mass extending in the mediastinum; multiple hypermetabolic mediastinal and hilar nodes; and multiple bone metastasis in the vertebral spine, pelvis and rib. Right pleural effusion with minimal left pleural effusion was also seen.

Subsequently, the pleural effusion was drained via pigtail, with pleural fluid cytology negative for malignancy. She was referred to Radiation Oncology, for 10 cycles of thoracic radiation for the superior vena cava (SVC) syndrome, and Medical Oncology for 6 cycles of Carboplatin and Etoposide.

A repeat CT scan of the chest (Figure 8) was requested after two cycles of chemotherapy

Figure 4. High Resolution Computed Tomography scan of the chest, showing an apparent interval decrease in the size of the lobulated non-calcified mass with irregular borders in the anterior segment of the right upper lobe (RUL), mainly to clearing of the peripheral obstructive pneumonitis.



the size of the right upper and right lower lobe masses; interval resolution of the bilateral pleural effusion. Post right chest pigtail removal, findings were suggestive of a good response to chemotherapy. She completed the course of radiation and chemotherapy.

After the completed course of chemotherapy, a repeat chest CT scan (Figure 9) showed Interval development of ground glass and reticular opacities and bronchiectasis in the right lung and left upper lobe with ipsilateral effusion, which was compatible with radiation induced lung injury. However, an overall increase in size of the pulmonary and subpleural nodules in the left lung was reported with development of sclerotic foci in the right scapula and humeral head.

Within the same period (4 months prior to admission), she noted a palpable mass which was soft and doughy in character over her right anterior chest wall 3rd to 4th intercostal space level, with significant tenderness and gradually enlarging over 1 month. An ultrasound of the mass (Figure 10) showed a solid nodule with minimal vascularity. She underwent excision biopsy and histopathologic report of the mass was a Metastatic Non – Small Cell Carcinoma, favoring poorly differentiated adenocarcinoma. Immunohistochemistry stains were positive for TTF-1, CK5/6, and Chromogranin. Stains were negative for Napsin, and Synaptophysin. Moreover, EGFR assay was negative. Final Histopathologic reading was Neuroendocrine Tumor, Combined Small Cell Carcinoma and

Figure 5. High Resolution Computed Tomography scan of the chest, showing an interval progression of the right upper lobe mass and mediastinal lymphadenopathy; and progression in the right lower lobe nodule and some pulmonary nodules in the left lower lobe- with bilateral pleural effusion, more in the right lung.

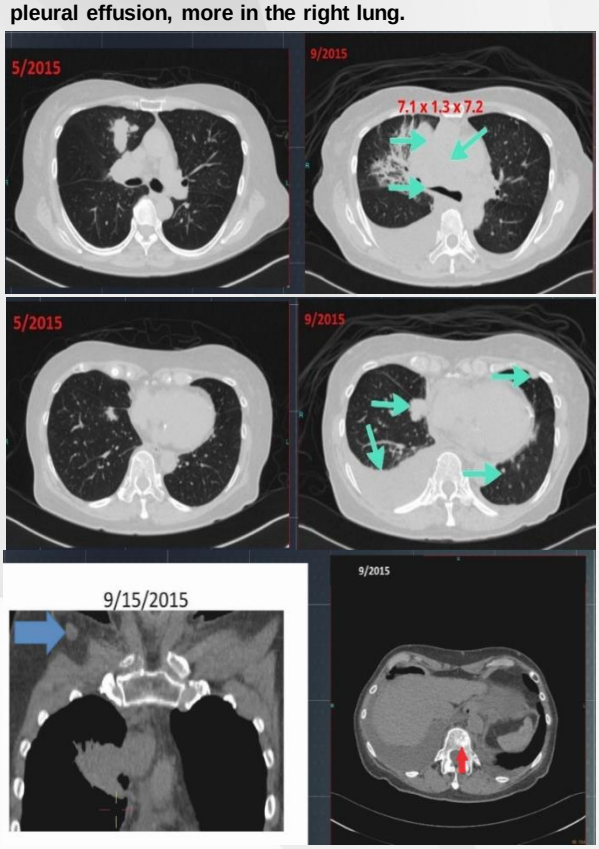


Figure 6. Histopathology revealing a Small Cell Carcinoma

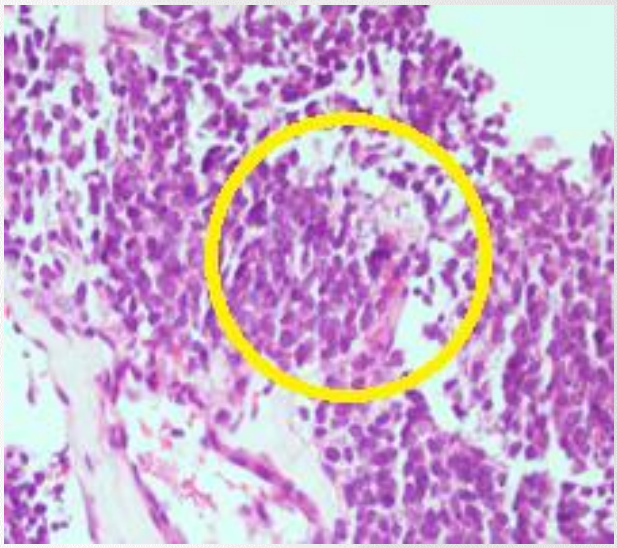


Figure 8. High Resolution Computed Tomography Scan of the chest showing interval significant decrease in the size of the right upper and right lower lobe masses. Interval resolution of the bilateral pleural effusion.

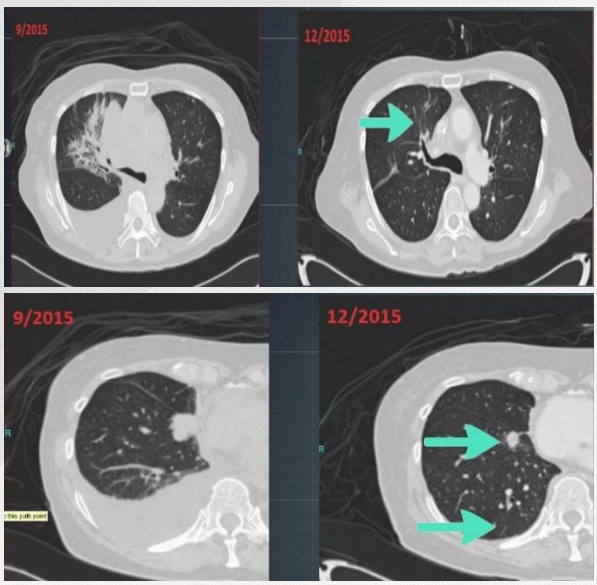


Figure 7. Positron Emission Tomography Scan showing hypermetabolic right upper lung mass extending in the mediastinum. Multiple hypermetabolic mediastinal and hilar nodes. Multiple bone metastasis in the vertebral spine, pelvis and rib. Right pleural effusion with minimal left pleural effusion was also seen

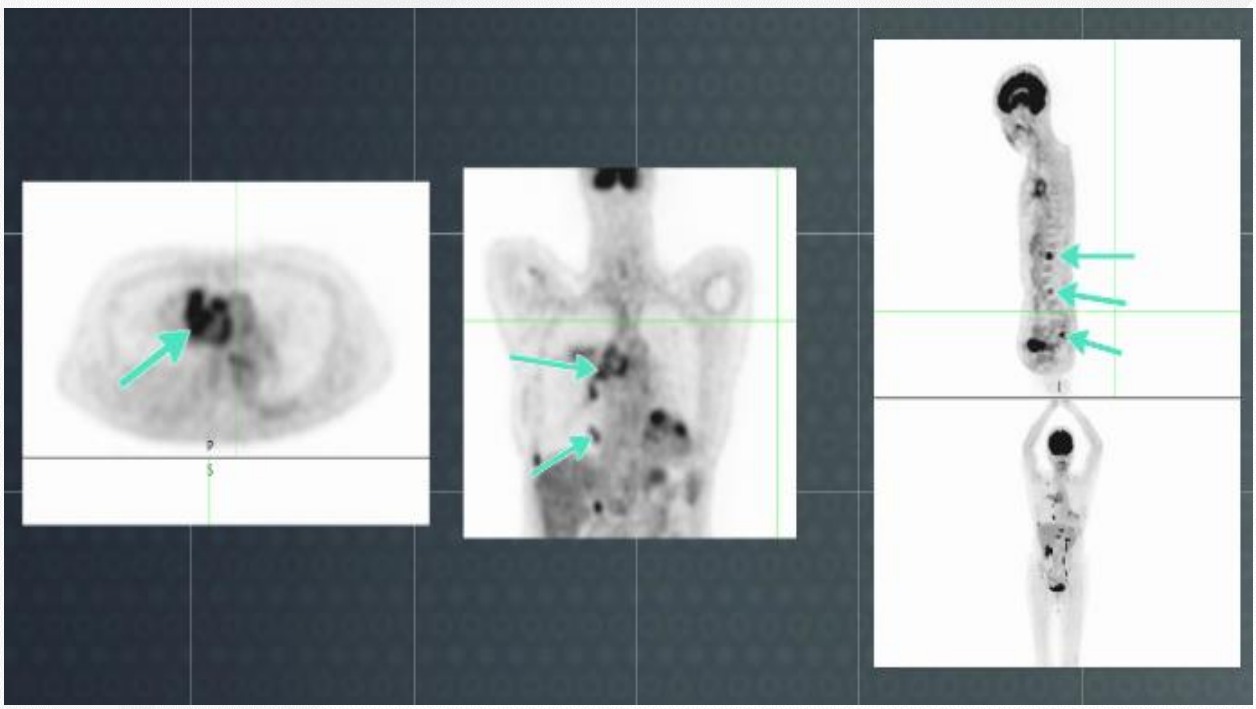


Figure 9. Ground glass and reticular opacities and bronchiectasis in the right lung and left upper lobe with ipsilateral effusion; overall increase in size of the pulmonary and subpleural nodules in the left lung.

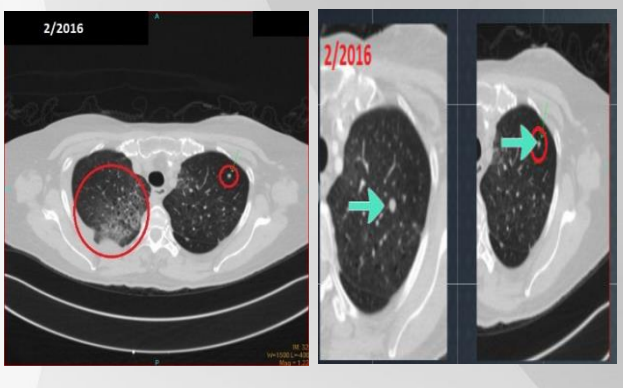
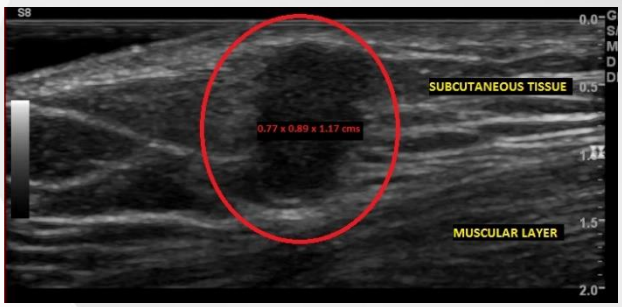


Figure 10. Ultrasound of the anterior chest wall mass a solid nodule with minimal vascularity



Non-Small Cell specifically Large Cell Carcinoma. Upon recommendation of her medical oncologist, she underwent Gemcitabine chemo-therapy, but after the 1st cycle she developed several bouts of febrile neutropenia and anemia requiring blood transfusions, and infections. Hence Gemcitabine was discontinued. A multidisciplinary meeting was conducted to discuss other treatment options for the patient including Immunotherapy. At this time, she was admitted for initiation of Immunotherapy.

The patient was admitted under the Pulmonary Service. She was seen awake, not in respiratory distress, fair functional capacity with stable hemodynamics, 99% oxygen saturation at room air. On further examination, there were bilateral palpable, non-tender cervical nodes. The rest of the physical examination and neurologic findings were unremarkable. Referrals to medical oncology, cardiology, neurology and radiation oncology were made. Laboratory results showed normochromic normocytic anemia; hgb 10.5 g/dl, hct 30.70, wbc 7.91 x 10^3/ UL, segmenters 80, lymphocytes 6, and platelet count 206,000; serum Na 139 mmol/L, K 3.9 mmol/L, creatinine 0.65 mg/dl, albumin 3.4 g/L (slightly low), AST 54 U/L and ALT 72 U/L (both elevated transaminases). Her Cranial CT scan revealed multiple cerebral and cerebellar masses. She was started with dexamethasone 5mg IV every 6 hours, Mannitol 75 ml every 4 hours and Citicholine 1gram IV once a day which were subsequently tapered off accordingly. She underwent 5 fractions of cranial radiation therapy. Pembrolizumab was also started.

Although she had a good response to the first dose of immunotherapy, she had recurrent hospitalizations due to recurrent infections, electrolyte imbalances and had poor functional capacity. A total of 2 doses of Pembrolizumab was given to her, and after the second dose, her condition worsened and eventually succumbed to the disease.

DISCUSSION

The pathogenesis of lung cancer involves the accumulation of multiple molecular abnormalities over a long period. Alterations in gene expression can result from methylation, DNA sequence changes, DNA segment amplification, deletion or whole chromosome gains or losses[1].

For each patient with suspected lung cancer the over-all goal is timely diagnosis and accurate staging. General approach should be tailored to the individual values and preferences of the patient, the clinical presentation, as well as the technical expertise at the practicing institution.

With the case presented, we identified important points representing the clinical dilemmas we encountered, leading us to further

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With the case presented, we identified important questions representing the clinical dilemmas we encountered, leading us to further investigate. What could explain the presence of small cell carcinoma after anti-Koch's treatment of an initial granulomatous inflammatory disease? Was there transformation of a small cell carcinoma to a non-small cell carcinoma after treatment was given? And lastly, was this to begin with, a combined small cell and large cell carcinoma after all?

The initial right pulmonary mass biopsy revealed a chronic granulomatous inflammation. With the presence of symptoms, despite negative tissue and sputum AFB smears, gene expert and tuberculosis culture, it was deemed prudent start the anti-Koch's treatment. However, on follow-up after completion of treatment, there was disease progression necessitating a repeat biopsy which revealed a small cell carcinoma extensive stage disease.

Could this small cell carcinoma be a scar carcinoma? The relationship between lung scars and carcinoma development has been a controversial issue for some time. Scar carcinoma is a histologic diagnosis first described in 1939 and 1949. It is a peripherally located tumor, with no evidence of bronchial origin, and occurring in intimate relation to scar tissue. The criteria for Scar Carcinoma includes: peripheral location, size less than 3cms in diameter, an upper lobe predominance, male predominance and usually adenocarcinoma histologic type. Recently, histologic characteristics have varied to squamous cell, large cell and bronchioalveolar carcinomas[2].

Over the past 2 decades, the evidence for the role of inflammation and genetic changes in the development of cancer has accumulated. Infections such as pulmonary tuberculosis can cause chronic inflammation and can play an important role in the genesis of scar development[2]. A large cohort study by Engels et al[3] showed increased lung cancer mortality in patients with a diagnosis of tuberculosis. This association was pronounced in the first 5 years of diagnosis but persisted up to 10 years. Moreover, lung cancer tends to arise on the same side of the

chest as the tuberculosis.

The patient had a significant smoking pack year history which puts her on high risk for lung malignancy. Cigarette smoking is associated with chronic lung injury and development of lung cancer. Nicotine and its interaction with nicotine acetylcholine receptors wherein these receptors have been noticed to be overly expressed in small cell lung carcinoma. These are involved in EGFR enhancement promoting proliferation, angiogenesis and inhibition of apoptosis of tumor cells[2].

In our case, the right pulmonary mass was centrally located, with size more than 3cm in diameter, in the right upper lobe, with metastasis in the right lower lobe. Histology identified it as a small cell carcinoma. The diagnosis of lung scar carcinoma at this point could not be considered due to the discrepancy in the proposed criteria and our diagnostic findings.

Due to the discrepancy, was the core biopsy sample enough for the diagnosis or was there sampling error? In retrospect, the core biopsy of the initial pulmonary lesion showed granulomatous inflammation. In selecting a suitable therapy for intrathoracic lesions, accurate pathological diagnosis is essential. The skill of the operator, experience of the interpreter, and the nature of the lesion are among the factors that also affect diagnosis. Two studies reported that core needle biopsy has high satisfactory and adequacy rates, reaching up to 99.5%. However false negatives were also identified[4, 5, 6].

Both studies stated that when a benign diagnosis is obtained, there is clinical uncertainty over on how to proceed as a few of these lesions may prove to be malignant. Sampling error can still occur despite high adequacy rates basing on their review of cases[5,6].

We deduced that the initial core biopsy sample taken could have been the inflammatory part of the growing tumor cell. A more plausible explanation than being a lung scar carcinoma.

Our next clinical dilemma was if there was a transformation of small cell carcinoma to a non-small cell carcinoma after treatment with chemotherapy. Chemotherapeutic agents have been shown to induce in vivo differentiation and maturation. Agents with antitumor activity and putative differentiation-inducing effects have been shown experimentally to induce epithelial differentiation and drug activity was correlated with major phenotypic changes and with acquired differentiation[7].

Brambilla et al[7] examined tumor samples from 20 SCLC patients, taken before chemotherapy (etoposide, doxorubicin, and cyclophosphamide) and again at the onset of chemoresistance (after at least three courses of chemotherapy), and compared them. The histologic changes were minor in 10 of 20 patients, as shown by an increase in cell size. However, the other half had significant histologic changes such as the appearance of composite tumors in which neuroendocrine (NE), epidermoid, and glandular components were mixed.

To further strengthen those findings, Oser et al[8] created a hypothetical model depicting the molecular events that lead to transformation from a non-small cell adenocarcinoma to a small cell lung carcinoma. It states that Alveolar type II cells have the potential to form both adenocarcinoma and small cell carcinoma, depending on the mutational status of key oncogenes and tumor suppressors. Transformation from adenocarcinoma to SCLC involves the loss of RB1 and loss of EGFR protein expression (seen in EGFR mutant). What is interesting in this model is that a small cell carcinoma can possibly transform into a non-small cell carcinoma yet with unexplained mechanisms or mutations as of this time.

The work of Aldenstein et al[9] suggests a unified concept that all lung cancers are derived from a common endodermal origin and that a spectrum of differentiation exists, progressing from small cell undifferentiated to large cell undifferentiated and then to squamous cell or

adenocarcinoma. Further studies however are needed to provide explanation at a molecular level.

Presently, there are 2 large case series that have investigated the frequency of tumors with combined small cell and non- small cell histology. In their review of mixed small cell and non-small cell lung cancer, they reported a postmortem series of 40 patients originally diagnosed with small cell cancer.All but two received prior chemotherapy with or without irradiation. At autopsy, 5 patients had pure non-small cell cancer, and 6 had mixed small/non-small cell tumors. This was believed to represent either: Initial presence of two tumors with the persistence or emergence of one after treatment; treatment induced change in initial tumor morphology; or initial mixed histologic features representing varying degrees of differentiation of a single neoplasm[9].

Three years after, a second large case series was done by Mangum et al[10] on Combined Small Cell and Non-Small Cell Lung Cancer. They studied histology of 429 SCLC tumors wherein they identified 9 (2%) contained non-small cell lung cancer (NSCLC) component wherein 6 adenocarcinoma, and 3 squamous cell carcinoma. Their proposed mechanisms for the combined small cell cases were also similar with the first case series: there could be a transformation from one phenotype to another or core biopsy samples did not prove sufficient pathological material to determine the presence of combined histology to be identified at diagnosis.

A notable observation in autopsy studies is that nearly 50% of patients who are initially diagnosed with pure SCLC are found to have NSCLC either exclusively or in combination with SCLC after treatment. A possible explanation is that a minor NSCLC component (which may not be represented in small biopsy or cytology specimens) is selected because of greater chemoresistance than SCLC[11]. Pathologists should be aware of this phenomenon when dealing with a post-treatment specimen in a patient with initial diagnosis of SCLC [11, 12].

From the gathered literature, our case could possibly be a transformation of a non-small cell from a small cell carcinoma basing on the theoretical and experimental models discussed. However, based on the 2 large scale case series presented, despite the possible occurrence of a phenotypic change, some of their cases actually had a mixed component to begin with due to lack of tissue specimen biopsied.

The existence of mixed histologic findings might then explain the rather common observation of an incomplete response to chemotherapy in small cell cancer, perhaps due to a different sensitivity of the non- small cell component[9,10]. Furthermore, distinct differentiation of a mutated small cell to a non-small cell carcinoma is of utmost importance since this can affect treatment plan[11].

We reviewed the tissue specimen again and found out that it was a combined small cell non- small cell carcinoma in the first place, with similarity to the cases reviewed wherein core biopsy samples did not prove sufficient pathological material.

COMBINED SMALL CELL and LARGE CELL CARCINOMA

Combined small cell carcinoma is a multiphasic form of lung cancer. It is an admixture of a small cell carcinoma with one or more components of a non-small cell lung carcinoma[11]. Currently, it is classified under Neuroendocrine Tumors, Small Cell Carcinoma basing on the 2015 WHO Classification of Lung Tumors[13].

Reliable incidence statistics are still unavailable. In the literature, the frequency with which the combined small cell carcinoma variant is diagnosed largely depends on the size of tumor samples; tending to be higher in series where largesurgical resection specimens are examined, and lower when diagnoses are based onsmall cytology and/or biopsy samples[12].

Tatematsu et al[14] reported fifteen cases of

c-SCLC (12%) in their series of 122 consecutive SCLC patients and Nicholson et al[15] found 28 c-SCLC (28%) in a series of 100 consecutive resected SCLC cases. It appears likely then, together with the other case series reported, that the combined small cell carcinoma variant comprises 28% to 30% of all small cell carcinoma cases.

Incidence of combined small cell carcinoma variants are as follows: Combined with large cell- 16%, combined with adenocarcinoma – 9%, and combined with squamous cell carcinoma- 3%; other variants such as combined with giant cells or spindle cells have been reported but too few as of this presentation[12].

Combined Small Cell and Large Cell Carcinoma is defined histologically as a tumor with a mixture of SCLC and at least 10% larger cells that morphologically qualify as a non-small cell carcinoma[16]. The histopathogenesis of combined small cell carcinoma appears to be a complex and varied phenomenon[17].

Morphological divergence of the separate components occurs when a SCLC-like cell is transformed into a cell with the potential to develop NSCLC variant characteristics, and not vice versa as suggested by genomic and immunohistochemical studies. Daughter cells of this transdifferentiated SCLC-like cell undergo repeated division under both intrinsic & extrinsic environmental influences, acquiring additional mutations with the result of a tumor with specific cytologic and architectural features suggesting a mixture of SCLC and NSCLC[12, 17].

Other studies, however, suggest that in at least a minority of cases, field cancerization occurs when there is independent development of the components in c-SCLC occurring via mutation and transformation in two different cells in close spatial proximity to each other. In these cases, repeated division and mutational progression in both cancer stem cells generate a biclonal "collision tumor" [18].

It also occurs quite commonly after treatment of "pure" SCLC with chemotherapy and/or radiation, probably because of a combination of tumor genome-specific mutations, stochastic genomic phenomena, and additional mutations induced by the cytotoxic agent[19].

Regardless of which of these mechanisms give rise to the tumor, recent studies suggest that the combined tumor develops molecular profiles that more closely resemble each other than they do with the cells of the "pure" forms. This likely has important implications for treatment of these lesions, given the differences between standard therapeutic regimens for SCLC and NSCLC[20].

Combined small cell/ large cell neuroendocrine variant is a pulmonary neoplasm with biphenotypic neuroendocrine differentiation that has never been extensively studied. D'Addat et al[20] was the first to separately characterize genetic alterations in this combined neoplasm. They found that alterations of chromosomes 3p, 9p21 and 17p13 are frequently found, even in precursor lesions. These suggest a close genetic relationship between two phenotypically different components of these combined neoplasms. Majority of these combined neoplasms showed high degree of genetic concordance, represented by either lack of alterations or presence of imbalances involving the very same allele. These similarities support the hypothesis of a monoclonal carcinogenesis mechanism with tumor cells of the two components deriving from a common precursor undergoing divergent differentiation.

Histologic features of combined small cell and large cell carcinoma include a small cell and a large cell component wherein the small cell component is composed of diffuse sheets of malignant cells comprising small sized cells that are round-to-fusiform shape with scant cytoplasm as opposed to the large cell[11].

Although in many cases SCLC can be diagnosed on good quality tumour material with

high quality hematoxylin- and eosin-stained section, immunohistochemistry can be very helpful in diagnosing pulmonary neuroendocrine tumors[11].

In the WHO 2015 Classification of Lung Tumors, immunohistochemistry is now recommended, when possible, not only for small biopsies/cytology, but also for resected specimens in certain settings such as solid adenocarcinoma, non-keratinizing squamous cell carcinoma, large cell carcinoma, neuroendocrine tumors and sarcomatoid carcinomas.[13]

The optimal panel of stains for diagnosis of SCLC includes pancytokeratin antibody (AE1/AE3), CD 56, chromogranin and synaptophysin, TTF-1 and Ki-67[21].

The anterior chest wall mass of our patient initially revealed a metastatic non-small cell carcinoma, favoring poorly differentiated adenocarcinoma. Immunohistochemistry studies with TTF1, Napsin A, Cytokeratin 5/6, Chromogranin, and Synaptophysin were done. Results were The mass was Chromogranin positive, indicating a neuroendocrine tumor, focally positive for CK 5/6, which can be seen in adenocarcinoma or large cell carcinoma. However for this case, it was a large cell carcinoma basing on its diagnostic morphology seen in microscopy and positive for TTF 1, explaining the extrathoracic site of small cell metastasis.

The current generally accepted standard of care for all forms of SCLC is concurrent chemotherapy (CT) and thoracic radiation therapy (TRT) in LD, and CT only in ED[22]. Standard of care first line for ED-SCLC is a combination of Etoposide or irinotecan with cisplatin or carboplatin in Asia[23].

Our patient was given carboplatin and etoposide in accordance with the guidelines for first line chemotherapy in extensive stage disease. Thoracic radiation at that time was indicated due to findings of a SVC syndrome – wherein the right upper lobe mass was encasing the right SVC, and adjacent hilar structures exhibiting a mass effect.

Presently, the prognostic significance and clinical management of combined SCLC is still controversial, although it has been established that the initial treatment is driven by the small cell carcinoma component. Further, the significance of different types of combined SCLC (eg containing adenocarcinoma versus squamous cell carcinoma versus SC/LC carcinoma) is not known[11].

Despite the high incidence of mutations in SCLC, to date no targeted therapy has been shown to benefit this population, and systemic treatment has not changed significantly during the past 3 decades. Recent evidence shows that the immune system is capable of generating antitumor responses against various tumors, including lung cancer, suggesting that immunotherapy may be a visible therapeutic approach to treatment of patients with SCLC[24].

Antibodies that target the programmed cell death protein-1 (Nivolumab and Pembrolizumab) and cytotoxic T-lymphocyte antigen-4 (Ipilimumab) immune checkpoint pathways are perhaps the most promising. Pembrolizumab is approved for treating metastatic NSCLC who progressed on or after platinum-containing chemotherapy or approved molecular therapies for EGFR and ALK aberrations, but only in patients whose tumors express PD-L1 (PDL1 positivity tumor proportion score of more than 50%). Currently, there are ongoing clinical trials (phase I/II studies) investigating the role of immunotherapy in extensive stage disease of SCLC such as Checkmate 032 (nivolumab + ipilimumab vs nivolumab monotherapy), and Keynote 028 – pembrolizumab)[24].

Immunotherapy was offered to the patient, with extensive discussion on its risk and benefits. Most importantly the patient was made well-aware that there was no current evidence that immunotherapy had a benefit on her condition. This was offered on the premise that the patient had adverse effects to cytotoxic agents and the non-small cell component was the target despite the lack of PDL1 assay since it was not available

at that time. Despite all these important points discussed with her, she still agreed to receive immunotherapy.

Current consensus is that the long-term prognosis of c-SCLC patients is determined by the SCLC component of their tumor, given that "pure" SCLC seems to have the worst long-term prognosis of all forms of lung cancer[25]. SCLC prognosis remains poor, with median over-all survival of 8-13 months for ED-SCLC and a 5-year survival rate of 1-2% with ED- SCLC. Although data on c-SCLC is very sparse, some studies suggest that survival rates in c-SCLC may be even worse than that of pure SCLC, likely due to the lower rate of complete response to chemoradiation in c-SCLC. However, not all studies have shown a significant difference in survival[9,10,12].

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CROSS-SECTIONAL STUDY

Phenotyping of Adult Patients with Bronchial Asthma at the Lung Center of the Philippines Outpatient Department Asthma Clinic: A 6 month Pilot Study

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ABSTRACT

Purpose: Bronchial asthma is a common heterogeneous disease with a complex pathophysiology that carries a significant mortality rate and high morbidity. Current therapies based on inhaled corticosteroids and long-acting b-agonists remain effective; however, some patients do not respond to these treatments even at high doses of corticosteroids. Our study aimed to investigate the cellular phenotypes among asthma patients seen at the Out- patient Department (OPD) of the Lung Center of the Philippines.

Methods: A cross-sectional study design was used to for the study. A total of 80 Filipino asthmatic patients seen at the Outpatient Department were included in the study. Peripheral blood and sputum samples were collected, and demographic and clinical data such as gender, age, smoking history, body mass index, co-morbidities, medications used and Forced Expiratory Volume in 1 second were gathered. Eosinophilic phenotype was defined as eosinophil count >300 cells/mm^3 in the peripheral blood smear or > or equal to 3% in sputum examination.

Results: The eosinophilic phenotype was predominant (57.5%.) using peripheral blood among asthmatic patients at the OPD. The sputum examination tested on a subset of these patients showed that the paucigranulocytic and eosinophilic phenotypes were equally predominant at 46.7% each. No demographic or clinical characteristic was associated with the eosinophilic phenotype. Compliance ($p<0.01$) and the dose of steroid use ($p<0.01$) were statistically different between controlled and uncontrolled asthmatic patients. There was no statistical significance in the level of asthma control between eosinophilic versus non-eosinophilc phenotypes.

Conclusion: Eosinophilic phenotype is the most predominant phenotype among asthmatic patients at the Lung Center of the Philippines OPD Asthma Clinic using peripheral blood. Eosinophilic and paucigranulocytic phenotypes are the most common phenotypes using sputum examination. There was no association of phenotypes with demographic and clinical characteristics, as well as the level of asthma control.

Key words: Bronchial asthma, eosinophilic phenotype, peripheral blood eosinophilia, sputum eosinophilia

INTRODUCTION

Asthma is a heterogeneous disease of the airways and is a problem worldwide, with an estimated 300 million affected individuals.[1] Based on standardized methods for assessing asthma symptoms, it appears that the global prevalence of asthma ranges from 1 to 16% of the population in different countries.[2] In the Philippines, the overall prevalence of adult asthma is 8.7% based on the second NNHeS.[3]

The traditional guidelines for asthma diagnosis include suggestive clinical symptoms and the demonstration of airflow variability on pulmonary function test. However, symptoms and lung function are insensitive in reflecting the underlying airway inflammation. There is increasing evidence that phenotyping asthma according to airway inflammation can allow the identification of subgroups of patients who are more likely to respond to targeted therapy.

In particular, important studies have confirmed that eosinophilic airway inflammation most reliably predicts the response to anti-inflammatory treatment such as inhaled corticosteroid[4,5] and anti-IL5[6,7]. Recent studies have demonstrated the usefulness of induced sputum to guide asthma treatment.[8,9] These studies showed that normalizing airway eosinophilic inflammation allowed better control of asthma with reduced exacerbations and hospital admissions. There is however no evidence that inhaled corticosteroids may improve short term asthma control in the absence of uncontrolled eosinophilic inflammation as encountered in paucigranulocytic asthma.[10]

The presence of eosinophils measured in blood or in sputum samples may identify a phenotype of asthma termed 'eosinophilic'. Using a cut-off point of blood eosinophil count of >220/mm^3, up to 53% of a group of patients with severe asthma were found to have an elevated eosinophil count.[1] Using sputum eosinophil counts of either ≥2% or 3%, 17% of ICS-treated subjects, 25% of hospital clinic patients with asthma and 55% of patients with severe asthma[1] were defined as having eosinophilic asthma.

It is the objective of this study to determine the predominant phenotype and asthma control of patients at the Lung Center of the Philippines (LCP) Outpatient Department (OPD) Asthma Clinic using blood and sputum eosinophil count. It is also aimed to determine if phenotype outcome of asthmatic patients is associated with the following characteristics: age, sex, BMI classification, frequency of exacerbation, presence of admissions, asthma onset, smoking history, compliance, presence of co-morbidities, asthma control, and Forced Expiratory Volume in 1 second (FEV1). Lastly, we also want to determine the level of asthma control between eosinophilic versus non-eosinophilic patients using Asthma Control Test.

METHODOLOGY

We conducted a cross-sectional study among patients with asthma recruited from the Lung Center of the Philippines OPD Asthma Clinic from June 1, 2016 to October 30, 2016.

All adult bronchial asthma patients who followed-up at the Asthma clinic were included. All had Pulmonary Function Test confirming the diagnosis of asthma which showed reduced FEV1/FVC ratio and an increase in FEV1 by more than 12% and 200 ml from baseline to post-bronchodilator.

Not included in the study were those who smoked more than 10 years; those unable to expectorate phlegm; patients who were in exacerbation; and patients with other pulmonary disease.

All patients who satisfied all the inclusion and none of the exclusion criteria were included in our study. A signed written informed consent was obtained after the study objectives and procedures including blood extraction and sputum collection were explained to the patients. The demographic and clinical characteristics were reviewed and summarized. Spirometry

results were obtained from OPD charts. Demonstration of airflow variability (ie, increase in FEV1 of >12% and 200 ml following inhalation of 400 μg salbutamol) was reviewed. Those that did not fit the spirometry criteria were excluded from the study.

Level of asthma control was determined by the patient's perceived control and the Asthma Control Test (ACT)**.** Patient's perception of control was measured using the 5th question in the ACT questionnaire describing asthma control as somewhat controlled, well controlled or completely controlled. The Asthma Control Test is a patient self-administered tool for identifying those with poorly controlled asthma. It assesses the frequency of shortness of breath and general asthma symptoms, use of rescue medications, the effect of asthma on daily functioning and overall self-assessment of asthma control. An ACT score >19 indicates well-controlled asthma. The ACT questionnaire used had both English and Filipino translations.

Peripheral blood was extracted from all patients through venipuncture of the antecubital area. Blood was sent to the laboratory for analysis. Direct blood smear was done to perform manual differential count.

A subset of 30 patients had sputum examination done. Sputum induction was done by a trained respiratory therapist. The sputum was sent to the laboratory for analysis. Selected sputum plugs were spread across the slide prior to fixation and staining. The slide was air-dried, fixed and stained with Giemsa stain. Thereafter, manual differential count was performed.

The threshold value used to define eosinophilic from non-eosinophilic phenotype by blood was an absolute eosinophil count of 300 cells/mm^3**.**

Threshold values used to define the eosinophilic and neutrophilic phenotypes were a sputum eosinophil count ≥3 % and a sputum neutrophil count ≥76 % respectively (1). The mixed granulocytic phenotype was defined as both raised sputum eosinophil (≥3 %) and neutrophil counts (≥76 %) and the paucigranulocytic phenotype as sputum eosinophil and neutrophil counts lower than the thresholds.

We conducted the study in compliance with the ethical principles set in the Declaration of Helsinki. The Institutional Ethics Review Board (IERB) of the Lung Center reviewed and approved the study protocol and subsequent amendments prior to initiation. A signed informed consent was obtained by the investigators before data was collected. To observe confidentiality, subjects were assigned an identification number. Patients were also informed of their right to withdraw at any time for whatever reason.

Frequencies and percentages were computed for categorical variables while means and standard deviations were computed for quantitative variables. Simple logistic regression was used to determine significant association between phenotype classification and selected factors. Fisher exact test was used to determine if there was significant difference between eosinophilic and non-eosinophilic patients, and between patients with controlled and uncontrolled asthma. Mann-Whitney U Test was used for quantitative variables. McNemar test for dependent samples was also used to determine significant difference between perceived control and ACT-based control of asthma. Association and difference in proportion were considered significant when the p-value <0.05.

RESULTS

A total of 80 patients satisfied the inclusion criteria. Results (Table 1) showed that majority of the asthmatic patients were female (70%), with the average age of these patients at 56 years old. 67.5% have normal Body Mass Index (BMI), while overweight and obese patients were 16% and 6% respectively. Most of the patients were non-smokers (77.5%) while 2.5% were current smokers. Hypertension was

Table 1. Demographic Profile of Asthmatic patients at LCP OPD Asthma Clinic

Characteristics	No.	%
Sex		
Male	24	30.0
Female	56	70.0
Age		
mean ± sd	56.0 ± 13.1	
BMI		
Underweight	8	10.0
Normal	54	67.5
Overweight	13	16.3
Obese	5	6.3
Smoking History		
Non-smoker	62	77.5
Previous smoker	16	20.0
Smoker	2	2.5
Co-morbidity		
Hypertension	27	33.8
Diabetes Mellitus	8	10.0
Ischemic Heart Disease	5	6.3
Others	8	10.0

Table 2. Clinical Profile of Asthmatic patients at LCP OPD Asthma Clinic

Characteristics	No.	%
Exacerbation (past 12 months)		
0-1	75	93.8
2 or more	5	6.3
Asthma Onset		
Childhood	28	35.0
Adult	52	65.0
Compliance		
Non-compliant	11	13.8
Compliant	69	86.3
Asthma Control		
Uncontrolled	30	37.5
Controlled	50	62.5
Medication use		
LABA+ICS	25	31.3
LABA+ICS+ SABA	41	51.3
LABA+ICS, SABA, Theophylline	7	8.8
LABA+ICS, SABA, LTRA	3	3.8
LABA+ICS, SABA, LAMA	2	2.5
Dose of Steroid Used		
None	2	2.5
Low	28	35.0
Medium	35	43.8
High	15	18.8
FEV1		
mean ± sd	0.59 ± 0.15	

the most frequent co-morbidity at 33.8%.

For the patients' clinical profile (Table 2), it was observed that majority had asthma onset during their adult life (65%). Also, it was noted that 93.8% of the study population had infrequent exacerbations. Long Acting Beta Agonist (LABA)+ Inhaled Corticosteriod (ICS) plus Short Acting Beta Agonist (SABA) was the most common (51.3%) medication used by the asthmatic patients. Most of the patients received medium dose of steroid use (43.8%). Furthermore, majority of the asthmatic patients (86.3%) were compliant

Table 3. Distribution of Phenotype Classification

Phenotype	No.	%
CBC Screening (n=80)		
Eosinophilic	46	57.5
Non Eosinophilic	34	42.5
Sputum Screening (n=30)		
Eosinophilic	14	46.67
Paucigranulocytic	14	46.67
Neutrophilic	2	6.67

to medications. The Asthma Control Test (ACT) score showed that 62.5% have controlled asthma. Moreover, results also showed that the average FEV1 is 0.59 which deviated from the standard deviation of 0.15.

Table 3 showed the distribution of phenotype classification. It was noted that the predominant phenotype among asthmatic patients at the OPD using peripheral blood was eosinophilic at 57.5%. Non-eosinophilic phenotype accounted for the remaining 42.5%.

In addition, a subset of these patients (n=30) underwent sputum examination and it was observed that paucigranulocytic and eosinophilic phenotype were the most predominant phenotypes at 46.7% each.

Table 4 showed that eosinophilic and non-eosinophilic patients had no significant difference in terms of sex (p=0.813), age (p=0.299), BMI (p=0.259), exacerbation in the previous year (p=0.388), asthma onset (p=0.813), smoking history (p=1.000), compliance (p=0.338), presence of co-morbidity (p=0.267), asthma control (p=0.246), FEV1 (p=0.261), medication use (p=0.392), dose of steroid use (p=0.609), and hospital admission (p=0.401).

Table 5 showed the distribution of selected characteristics by asthma control. Compliance (p=0.000) and the dose of steroid use (p=0.009) were significantly different among patients with controlled and uncontrolled asthma. Frequency of exacerbation (p=0.27), type of medication used (p=0.727) and phenotype classification using peripheral blood (p=0.147) were not significantly different among patients with controlled and uncontrolled asthma.

Table 6 showed the association of factors for the specific phenotype. Males were 18% less likely to have eosinophilic phenotype rather than females, however the association was not significant (p= 0.693). The odds for patients to have non-eosinophilic phenotype increased by 2% for every 1 year increase in age, however the result was not significant (p= 0.209). The odds that an overweight asthmatic patient had eosinophilic asthma was 55% more than those with normal BMI, however the association was not significant (p= 0.51). Underweight patients had 77% less likelihood to have eosinophilic phenotype than patients with normal BMI (p= 0.087).

Furthermore, the odds that an obese patient has eosinophilic asthma was 3% more likely, but the association was not significant (p = 0.974). The odds of having eosinophilic phenotype was 3.14 times higher for patients who had 2 or more exacerbation than those with less frequent exacerbation (p= 0.316). Adult onset asthma was 18% less likely to have an eosinophilic phenotype than childhood asthma (p= 0.67). The odds that an asthmatic with smoking history had eosinophilic phenotype was 10% less than those who were non-smokers, however this was not significant (p= 0.85). Patients who were non-compliant to medications were 2.18 times more likely to have eosinophilic phenotype compared to those who were compliant, but this was not statistically significant (p=0.28). Asthmatic patients with co-morbidities were 1.7 times more likely to have eosinophilic phenotype than those without co-morbidities, however, this association was not significant (p=0.245). The odds that a patient with uncontrolled asthma had eosinophilic phenotype was 1.85 times more likely than those with controlled asthma, however the association was not significant (p=0.201). The odds that an asthmatic patient had

Table 4. Distribution of Selected Characteristics by Phenotype Classification

Characteristics	Eosinophilic (n=46)		Non Eosinophilic (n=34)		P-value*
	No.	%	No.	%	
Sex					
Male	13	28.3	11	32.4	0.813
Female	33	71.7	23	67.6	
Age (mean ± sd)	54.4±2.1		58.2±2.0		0.299
BMI					
Underweight	2	4.3	6	17.6	0.259
Normal	32	69.6	22	64.7	
Overweight	9	19.6	4	11.8	
Obese	3	6.5	2	5.9	
Exacerbation (previous year)					
0-1	42	91.3	33	97.1	0.388
2 or more	4	8.7	1	2.9	
Asthma Onset					
Childhood	17	37	11	32.4	0.813
Adult	29	63	23	67.6	
Smoking History					
Non-smoker	36	78.3	26	76.5	1.000
Current/Previous smoker	10	21.7	8	23.5	
Compliance					
Non-compliant	8	17.4	3	8.8	0.338
Compliant	38	82.6	31	91.2	
Comorbidity					
Without	21	45.7	20	58.8	0.267
With	25	54.3	14	41.2	
Asthma Control					
Uncontrolled	20	43.5	10	29.4	0.246
Controlled	26	56.5	24	70.6	
FEV1% (mean ± sd)	61.1.±2.2		56.8±2.7		0.261
Medication Use					
LABA+ICS	15	32.6	10	29.4	0.392
LABA+ICS, SABA	24	52.2	17	50	
LABA+ICS SABA, Theophylline	4	8.7	3	8.8	
SABA	1	2.2	1	2.9	
LABA+ICS, SABA, LTRA	0	0	3	8.8	
LABA+ICS, SABA, Tiotropium	2	4.3	0	0	
Dose of Steroid Use					
None	1	2.2	1	2.9	0.609
Low	15	32.6	13	38.2	
Medium	19	41.3	16	47.1	
High	11	23.9	4	11.8	
Admission					
No	35	76.1	29	85.3	0.401
Yes	11	23.9	5	14.7	

Table 5. Distribution of Selected Characteristics by Asthma Control

	Controlled (n=50)		Uncontrolled (n=30)		p-value*
Characteristics	**No.**	**%**	**No.**	**%**	
Compliance					
Compliant	50	100.0	19	63.3	0.000
Non-Compliant	0	0.0	11	36.7	
Exacerbation (previous year)					
0-1	48	96.0	27	90.0	0.27
2 or more	4	8.0	3	10.0	
Medication Use					
LABA+ICS	18	36.0	7	23.3	0.727
LAB+ICS, SABA	25	50.0	16	53.3	
LABA+ICS SABA, Theophylline	3	6.0	4	13.3	
SABA	1	2.0	1	3.3	
LABA+ICS, SABA, LTRA	2	4.0	1	3.3	
LABA+ICS, SABA, Tiotropium	1	2.0	1	3.3	
Dose of Steroid Use					
None	1	2.0	1	3.3	0.009
Low	21	42.0	7	23.3	
Medium	24	48.0	11	36.7	
High	4	8.0	11	36.7	
Phenotype					
Non-Eosinophilic	24	48.0	10	33.3	0.147
Eosinophilic	26	52.0	20	66.7	
*one sided Fisher Exact Test, p-value<0.05 is significant					

eosinophilic phenotype increased by 2% for every one unit increase in FEV1, however this was not significant (p=0.22). Patients who were admitted for the past 12 months were 1.82 times more likely to have eosinophilic phenotype than those patients who were not admitted. Use of high steroid dose was 2.75 times higher to have eosinophilic phenotype than those who did not use steroids however the association was not statistically significant (p =0.508).

Table 7 the results showed that 15.2% of eosinophilic phenotype had perceived uncontrolled asthma, while 2.9% of the non-eosinophilic phenotype also had perceived uncontrolled asthma. However, uncontrolled asthma using ACT was found in 43.5% of those with eosinophilic phenotype and 29.4% of those with non-eosinophilic phenotype. Fisher exact test (*) was used to determine whether the specific phenotype was significantly associated with asthma control.

Table 7. Distribution of Perceived and Objective Asthma Control

Type of Control	Eosinophilic (n=46)		Non-Eosinophilic (n=34)		Total		p-value*
	No.	%	No.	%	No.	%	
Perceived							
Uncontrolled	7	15.2	1	2.9	8	10	0.129
Controlled	39	84.8	33	97.1	72	90	
ACT score							
Uncontrolled	20	43.5	10	29.4	30	37.5	0.246
Controlled	26	56.5	24	70.6	50	62.5	
p-value**	0.0009		0.0077		0.000008		

However, no significant association was found (p= 0.246).

Ninety percent of the asthmatic patients perceived their asthma to be controlled, while only 62.5% showed controlled asthma through ACT. The McNemar test was used to determine if the proportion of patients with uncontrolled (or controlled) asthma using ACT was significantly different from the proportion of patients with perceived uncontrolled (or controlled) asthma. All p-values were less than 0.05, therefore the difference between the two proportions was significant.

DISCUSSION

Asthma is characterized by intermittent clinical symptoms, variable airway obstruction, and different response to treatment. Inflammatory phenotyping in asthma may be useful because it relates to treatment response. Studies show that eosinophilic airway inflammation predicts better response to ICS, whereas, non-eosinophilic asthma is less responsive to ICS. However, there are patients who have discordant disease with many symptoms with little evidence of eosinophilic inflammation. In these patients, increasing the dose of ICS will only lead to side effects and the medications needed may include more bronchodilators, anti-leukotrienes, low-dose azithromycin or other possible solutions, such as bronchial thermoplasty in severe asthma. Conversely, there are patients who show high eosinophilic inflammation with very few symptoms and these patients need high doses of ICS but little bronchodilation. In cases of severe discordant eosinophilic asthma, oral steroids or monoclonal antibodies, such as anti-immunoglobulin E (anti-IgE) or anti-interleukin 5 (anti-IL5) may be needed.

In this study, we have demonstrated that the most predominant phenotype among asthmatic patients at the Outpatient Department of the Lung Center of the Philippines using peripheral blood was eosinophilic at 57.5%. Using sputum analysis, the most predominant phenotype were eosinophilic and pauci-granulocytic at 46.7%. In other studies, the eosinophilic phenotype would account for 53%[14], 46%[1] and 40%[11]. The investigators were not able to encounter an Asian study regarding predominant cellular phenotype for their asthmatic patients.

This study involved more females than males (70% versus 30%), however, in the test for association, males have 18% less likelihood to have eosinophilic phenotype. This is in contrast

with the studies done by de Groot et al[13] which concluded that males were more associated to have eosinophilic phenotype. The discordance of our result with the latter study may be explained by the lesser proportion of male patients in this study.

It was also observed in this study that the overweight patients had increased likelihood to have eosinophilic phenotype at 55%. Furthermore, obese patients were 3% more likely to have eosinophilic phenotype. This is in contrast with other studies which showed that neutrophil-predominant airway inflammation, which is associated with more severe phenotypes of asthma, may play a greater role in obesity-associated asthma. Several studies have shown that airway neutrophils were increased in obese women with asthma.[15,16] Meanwhile, other studies, which may have looked at a heterogenous group of obese asthmatics, did not note any relationship between obesity and sputum eosinophils.[17]

Patients who had exacerbation for the past 12 months were 3.14 times more likely to be of eosinophilic phenotype. Furthermore, patients with a history of admission for the past 12 months were 1.82 times more likely to have eosinophilic phenotype. These results were in parallel to other studies wherein eosinophilic phenotype was associated with poor asthma control and more severe asthma.[18,19]

In this study, it was observed that adult-onset asthma was 18% less likely to have eosinophilic phenotype. This is in congruence to a study done by McGrath et al[17] wherein in a population of 995 asthmatics, approximately half of the population had non-eosinophilic phenotype.

Current smoking rates among asthmatic patients from the USA and UK range from 17–35%. An additional number of adult asthmatics are former smokers, with prevalence rates ranging from 22–43%.[20,21] Smoking history appeared to decrease the likelihood to have eosinophilic phenotype by 10% in this study. There are no published studies on the histology of airway inflammation in smokers with asthma assessed by either bronchial biopsies or lung-resection specimens. Our results were congruent with a study which showed that blood eosinophil counts were reduced in smokers, compared with nonsmokers, with mild asthma.[22] They further explained that the reduction in eosinophil counts could be due to the increasing apoptosis of activated eosinophils by exogenous nitric oxide (NO).

In this present study, the investigators noted that uncontrolled asthma has 1.85 times more odds to have eosinophilic phenotype. Several studies have shown that high levels of eosinophils in sputum[23] and bronchial biopsies[24] are associated with poor asthma control, more severe asthma[21] and fatal or near-fatal asthma attacks.[24]

This study observed that compliance and the dose of steroid used as maintenance treatment significantly differed for patients with controlled and uncontrolled asthma.

Lastly, 62.5% of asthmatic patients had controlled asthma per ACT score. However, 90% of patients perceived their asthma to be controlled which was statistically significant. This was also observed in a study done in India by Pereira et al[25] wherein out of the 205 patients, 69.3% perceived their asthma to be controlled however only 22.4% were controlled on the ACT. In this study, the patients overrated their asthma control. The disparity of the perceived asthma control versus ACT score may be explained as a significant number of people with asthma tend to underestimate the severity of their condition and overestimate how well their asthma was controlled.

Some limitations were identified in our study. Majority of the results were gathered from female patients (70%) and most of the patients seen had controlled asthma. The study was also able to recruit 80 patients only. The sputum analysis that was done was only direct smear. The standard sputum processing was not done because it was not available in our laboratory.

CONCLUSION

Eosinophilic phenotype is the most predominant phenotype among asthmatic patients at the Lung Center of the Philippines OPD Asthma Clinic using peripheral blood. Eosinophilic and paucigranulocytic phenotypes are the most common phenotypes using sputum analysis. Eosinophilic phenotype was associated with higher BMI, exacerbation and admission in the last 12 months, non-compliance to medications, presence of co-morbidities, uncontrolled asthma and use of steroids. There was no association between phenotypes and the level of asthma control. However, patient's perception of controlled asthma was statistically higher than ACT.

RECOMMENDATIONS

The investigators were able to recruit 80 patients. A larger sample size would have been beneficial to show if there is better association of factors to eosinophilic versus non-eosinophilic phenotypes. Also, we were only able to perform 30 sputum analysis. If finances suffice, sputum analysis should be done on all patients to prevent bias. Also, it might be noteworthy to include the presence of atopy and IgE levels of these individuals.

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