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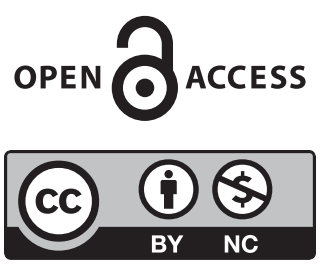

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LUNG CENTER OF THE PHILIPPINES

Scientific Proceedings

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Message from the Executive Director

It is a pleasure to welcome back the LCP **Scientific Proceedings** after several years of absence in print. This new issue features the abstracts of 44 completed papers from the various fellowship training programs of our institution, a clear proof that despite the publication's prolonged hiatus, our research program and activities remained active in coming out with clinical studies that are interesting to readers and relevant to our present times.

This issue is also significant as this represents the initial efforts of our new editorial staff, led by Dr. Jubert Benedicto as editor-in-chief and Dr. Cecilia Jocson and Dr. Racquel Ibañez as assistant editors. They are giving the publication a fresh face, not only with the re-formatted journal cover, but also by ensuring the high quality of the articles and over-all standard of its content by gathering a group of peer reviewers who are experts in their own fields to assist them. This, we hope, will bring the **Scientific Proceedings** to a level comparable to the more prominent local journals, and perhaps in the future, of international journals.

Our congratulations to the editorial staff and authors of this issue, as well as our thanks to the Clinical Research Department headed by Dr. Norberto Francisco, for providing the necessary logistic, technical, and moral support to give the **Scientific Proceedings** a new breath of life and the opportunity to pursue greater achievements in the future.

Vincent Balanag Jr., MD, MSc
Executive Director IV
Lung Center of the Philippines

LUNG CENTER OF THE PHILIPPINES
Scientific Proceedings

A New Beginning for the Scientific Proceedings

Jubert Benedicto, MD
Editor-in-Chief

When the Center order came out designating the editorial staff for the **Scientific Proceedings**, the official journal publication of the Lung Center of the Philippines (LCP), I was stunned to see my name as Editor-in-Chief. I had some involvement working in our high school paper and then some stints as associate editor for the **Philippine Journal of Internal Medicine** (the official publication of the Philippine College of Physicians), and I have been a peer reviewer for a number of medical publications. But those were basically my core experience. I was more involved in the "other side of the fence," i.e., writing and editing my research outputs and submitting them for possible publication in local and international journals.

What made this task doubly intimidating was the knowledge that the last issue of the Scientific Proceedings was back in 2013. Coming out with a journal publication regularly and consistently is, in itself, already a daunting responsibility. However, in this case, we needed to first revive the **Scientific Proceedings**, possibly reinvigorate the LCP community of researchers so that they may contribute regularly, and then ensure that everybody will be satisfied with the output. Early on, I knew that what will be the essential elements will not just be the contents of this journal: the main "look" and overall impact will likewise be critical.

I flipped through the 2013 issue as well as some edited submissions that might have been ready for the next issue. Unquestionably, the research outputs were good and any journal would be proud to have them published. The main challenge was that, through time, a lot of the topics investigated were already answered or similar researches were already published and discussed in medical conferences. Another observation was that certain editorial policies for contributing authors and publication were not yet established. These are important pillars that create order and institutionalize crucial procedures. These policies will likewise make this journal compliant to accepted standards.

All these perspectives and matters were considered in this "revival" issue of the **Scientific Proceedings**. The critical elements were first established: the editorial staff, as well as the initial pool of peer reviewers were assembled; the policies that govern a scholarly medical publication were written and established in compliance with the International Committee of Medical Journal Editors (ICMJE); the author guidelines, instructions, and forms were updated; the editorial processes and timelines were reviewed and polished.

We have also coordinated with a professional brand specialist, and an experienced publisher/printing press, in order to ensure a "good makeover." Through it all, guidance, direction, and support, had been provided by the management.

We hope that in this 2021 "new look" issue, we were able to give due courtesy to the authors of past researches who consented to have their outputs published even in abstract formats. Further communications from interested parties may be done as we also provided their contact details at the end of their respective abstracts. Please also note the essential things that we incorporated to provide a professional appearance to LCP's official publication: Editorial Policies, Guide to Authors, Submission Checklist, Author Form, Patient Consent Form, and Branding Elements.

These will guide future contributors to the journal, improve transparency and compliance to the norms of ethical scholarly publication, and advance our practices to international standards.

We have progressive plans and great dreams for this journal. I sincerely hope that everyone will appreciate the efforts of the editorial board in coming out with this particular issue. Our Consultant Editor, Dr. Amado Tandoc, III, was very instrumental in this revival effort. It is also our fervent wish that our **Scientific Proceedings** will be considered a viable option for your publication purposes and can have a regular influx of research articles so that each issue will serve as a good scientific platform for research dissemination.

RESEARCH. WRITE. PUBLISH. REPEAT.

About the Journal

The **Scientific Proceedings,** the official journal of the Lung Center of the Philippines, is an open-access, English language, medical science journal, published by the Lung Center of the Philippines. Its policies are guided by the latest version of the International Committee of Medical Journal Editors (ICMJE) **"Recommendations for the Conduct, Reporting, Editing, and Publication of Scholarly Work in Medical Journals."**

Focus and Scope

The **Scientific Proceedings** intends to share local relevant scientific findings in the field of respiratory medicine through publication of high quality original clinical investigations, epidemiological studies, case reports, review articles, evaluations of diagnostic and surgical techniques, and the latest updates on management guidelines. The journal's target audience are clinicians, surgeons, specialists, respiratory therapists, laboratorians, scientists, researchers working on pulmonary medicine, and policy makers.

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Submissions that have passed initial check for general manuscript requirements shall be screened by the Editorial Board if these shall proceed to peer review. The **Scientific Proceedings** implements a double-blind peer review policy after which the Editor-in-Chief shall make a final deliberation on article inclusion in each issue. For manuscripts that undergo peer review, authors can expect an initial decision within sixty (60) days or less. There may be instances when final decisions can take longer, in which case, the secretariat shall inform the authors. Editorial decisions may be one of the following: (1) Acceptance without further revision, (2) Acceptance with minor revisions required, (3) Acceptance with major revisions required, or (4) Manuscript rejection. All accepted manuscripts are subject to formatting and edits to conform with the journal's style guide and branding.

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LUNG CENTER OF THE PHILIPPINES
Scientific Proceedings

Original Article

Knowledge and Practices among Pulmonologists of the Lung Center of the Philippines in Giving Pre-Employment Clearance in Asymptomatic Patients with Findings Suggestive of Tuberculosis in the Common Diagnostic Examinations

ABSTRACT

Objective. A standard Pre-employment Medical Examination (PME) is required by companies hiring new employees and this includes screening for PTB. Currently, none of the government sectors responsible for health and employment has issued a standard guideline for employment. The study aimed to review and consolidate the knowledge and practices of Pulmonologists in Lung Center of the Philippines (LCP) where majority of referrals are being forwarded.

Methodology. A cross-sectional study was done using a pre-tested, self-administered questionnaire. A mean passing score of 6.83 (computed based on Nadelsky method) was used to score the knowledge questions. Practice domain included theoretical cases frequently seen in the clinics. Short informant interview was done after answering.

Result. Twenty of the 43 respondents (46.5%) passed the knowledge questions and were found to be younger (Age 49.4 ± 12.0) with shorter number of years of practice (12 vs. 23 years). More incorrect answers were seen on evaluation of a positive Purified Protein Derivative (PPD) test and non-infectiousness of a clinically diagnosed TB, monitoring of treatment response and chemoprevention, however none of these were statistically significant. Practice domain showed applicants for local employment were more likely to be cleared for work after 2 weeks from initiation of treatment while those applying abroad were cleared after 6 months of TB treatment. PPD result did not play a role in their decision-making for clearance. For patients presenting with either granuloma or fibrosis on Chest X-ray, applicants applying abroad were more likely to be given chemo preventive treatment than applicants for local employment (75.3%). More than half (51.2%) of the respondents required at least 3 months of radiologic stability.

Conclusion. Location of employment is the most important limiting factor in giving PME clearance more than the nature of employment, PPD status and radiologic findings. There is a need for clinicians to update themselves on the latest clinical practice guidelines particularly on treatment response monitoring and chemoprevention.

Keywords: pre-employment clearance, PTB, fit to work

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Original Article

Comparison between sputum microscopy and LAMP test in presumptive TB cases seen at the Lung Center of the Philippines

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ABSTRACT

Objective. Loop mediated isothermal amplification or TB-LAMP is one of several molecular assays based on nucleic acid amplification technique which has been used for the rapid determination of tuberculosis. This test may be used as a replacement for smear microscopy in patients who are highly suspicious in having tuberculosis especially in high burden countries due to its reproducibility and fast results. Comparing TB LAMP with sputum smear microscopy in the local setting may help guide physicians in fast recognition and initiation of treatment in asymptomatic TB patients.

Methodology. This is a cross sectional study designed to compare the level of agreement between TB LAMP test and direct sputum smear microscopy at LCP in July of 2018.

Results. A total of 77 patients were included in this study. Majority of the included patients were males 71.43% and 28.7% female with a mean age of 55.49. There was no difference between the patients with positive and negative smear and TB LAMP results based on their age and sex. The level of agreement between TB LAMP and direct sputum smear results was 89.61% (p value<0.001).

Conclusion. As the assay is not operator dependent, requires minimal amount of sputum, provides faster results, and has a good level of agreement with DSSM, TB LAMP may be considered as an alternative to DSSM in the rapid determination of tuberculosis.

Keywords: TB LAMP, Pulmonary tuberculosis, Loop mediated isothermal assay

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Original Article

Association of Risk of Obstructive Sleep Apnea and Asthma Control among Adult Filipino Patients with Asthma

ABSTRACT

Objective. Asthma and obstructive sleep apnea (OSA) are both highly prevalent conditions with a major impact on public health especially when these two conditions coexist. OSA may adversely impact asthma-related outcomes by negatively affecting asthma control. Our objective was to determine the association between the risk of OSA and asthma control among adult Filipino patients with asthma at the Lung Center of the Philippines.

Methodology. This was a prospective cross-sectional analytical study including 138 patients with asthma who consulted at the Lung Center of the Philippines from August 2019 – March 2020. All participants were asked to answer two questionnaires – Berlin questionnaire and Asthma Control Test during a physician-assisted interview. Personal data, vital signs, anthropometric measures as well as co morbidities were recorded. P-values <0.05 were considered statistically significant.

Results. Out of the 138 patients who answered the Berlin questionnaire, 42 (30.4%) scored high risk for OSA. We noted that the high risk group are significantly older (64.5 vs 58, p = 0.0103), with higher BMI (25.39 vs 22.355, p = 0.0011), larger neck circumference (14 vs 13, p = 0.0004) and hypertensive (p<0.001). Patients with poor asthma control are 1.6 times more likely to be high risk for OSA(95% CI, 0.67-4.04).

Conclusion. High risk OSA is more likely associated with poor asthma control. These patients should be more thoroughly investigated and should be advised for sleep study preferably Polysomnography (PSG). Prompt diagnosis and treatment of OSA may improve control in asthma among adult Filipino patients.

Keywords: obstructive sleep apnea, asthma control, asthma control test, Berlin questionnaire

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Original Article

A Systematic Review and Meta-analysis on the Diagnostic Yield and Safety of Cryobiopsy Compared to Forceps Biopsy in Patients with Endobronchial Tumor

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ABSTRACT

Objective. Forceps biopsy (FB) through flexible bronchoscopy is now the diagnostic tool of choice to identify endobronchial tumors. Significant failure rates were noted because of small amount of tissue obtained and mechanical damage to the specimen. With the advent of cryobiopsy (CB) which yields larger specimen increases diagnostic yield. However, CB has higher rates of bleeding. We conducted a systematic review and meta-analysis to evaluate the diagnostic yield and safety of CB compared to FB.

Methodology. A systematic literature search of PUBMED, MEDLINE and Cochrane Library was conducted. Eligible RCTs comparing CB and FB were analyzed. Two reviewers independently extracted data and evaluated the quality of the studies.

Results. Five (5) RCTs with a total of 987 participants were analyzed. The diagnostic yield of cryobiopsy is significantly better compared to that of forceps biopsy, with an odds ratio of 4.58 (95% CI 3.02-6.95). We observed that across all the studies, cryobiopsy provides larger tissue sample compared to forceps biopsy regardless of variables. There seems more bleeding in cryobiopsy compared to forceps biopsy, with a risk ratio of 1.16 (95% CI 1.03-1.31). Three (3) studies affirm this conclusion, but cited that overall severity is usually mild.

Conclusion. This systematic review and meta-analysis showed that there is a high quality of evidence that cryobiopsy has a better diagnostic yield of about 21 cases per 100 compared to forceps biopsy. In terms of bleeding, there is a slightly higher chance of bleeding of about 5 cases per 100 in the cryobiopsy group.

Keywords: cryobiopsy, forcep biopsy, endobronchial tumor, sensitivity, bleeding

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Original Article

Meta-analysis on the Diagnostic Value of Virtual Bronchoscopic Navigation (VBN)-assisted radial Endobronchial Ultrasound (r-EBUS) versus r-EBUS alone for the Biopsy of Peripherally-located Solitary Pulmonary Nodules

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ABSTRACT

Objective. Solitary pulmonary nodule (SPN) is a diagnostic challenge for physicians especially when the lesion is located peripherally. Radial endobronchial ultrasound (r-EBUS) is a known alternative to CT scan guided trans-thoracic lung biopsy with lesser complication rate but inferior diagnostic yield. Virtual bronchoscopic navigation (VBN) can be used in combination with EBUS when getting a biopsy sample for SPN. The aim of this study is to know if among patients with peripherally located solitary pulmonary nodules. VBN + r-EBUS increases the diagnostic yield versus r-EBUS alone when doing a biopsy.

Methodology. Database search was done for randomized controlled trials comparing the diagnostic yield between VBN + EBUS vs EBUS alone among patients with SPN. Four (4) studies satisfying the inclusion criteria were evaluated by 2 investigators for study design and baseline characteristics, potential bias, and heterogeneity. Random effects model meta-analysis was performed.

Results. With an overall risk ratio estimate of 1.1 [1.00, 1.21] at 95% CI and a Forest plot that touches 1, there is no significant difference in the diagnostic yield between VBN + r-EBUS vs r-EBUS alone but there is a trend towards a better yield for the combined group. The complication rate has an overall risk ratio of 0.72 at 95% CI [0.31, 1.64]. This again shows a trend towards benefit with the combined group. For the total examination time and positioning time, both showed negative overall mean difference (-3.34 at 95% CI -6.24, 0.44 and -3.52 at 95% CI -4.48, -2.57 respectively) in favor of the combined group.

Conclusion. There is a trend towards a better diagnostic yield when we combine virtual bronchoscopic navigation with radial EBUS compared to radial EBUS alone. It is a safe procedure and offers lesser total examination time and positioning time when compared to EBUS alone.

Keywords: Solitary pulmonary nodules, radial endobronchial ultrasound, virtual bronchoscopic navigation

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Original Article

Incidence and Correlates of Adverse Drug Reactions Among Multidrug-Resistant Tuberculosis Patients Enrolled in the Standard Short Treatment Regimen (SSTR)

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ABSTRACT

Objective. The aim of this study is to determine the incidence and correlation of adverse drug reactions among MDR-TB patients enrolled in the standard short treatment regimen (SSTR) at LCP-Programmatic Management of Drug-Resistant Tuberculosis from January 2017 to December 2018.

Methodology. This is a retrospective cross sectional study. Demographic and clinical profile of MDR-TB patients were described using frequencies and proportions for categorical variables and mean and standard deviation for numerical variables. The incidence proportion for each ADR domain was computed by dividing the number of cases per symptom observed for nine (9) months by total number of patients.

Results. The incidence proportion of ADRs among MDR-TB patients was 80.7% (155 experienced at least one ADR out of 192, 95% CI: 74.4% to 86.1% for nine months. Out of 192 patients, 155 patients had adverse drug reactions. The age group with ADRs belongs to 31-50 years of age (36.8% p value 0.062), mostly male (65.8%), normal category (76 or 49%) at the start of treatment. Majority had history of smoking (69 or 44.5% p value of 0.067) and alcohol intake (69 or 44.5% p value of 0.202). Diabetes Mellitus (64 or 41.3%) is the most common co-morbidity in patient with ADRs. Most ADR patients had previous TB treatment (144 or 92.9%). Mostly half of the patient with ADRs had a cured treatment outcome (79 or 51%). The frequency of adverse drug reactions (ADRs) was as follows: nausea and vomiting 28.6%, abdominal pain 20.3%, dizziness 15.6%, hypokalemia 13.5%, joint pain 8.9%, rashes 7.3%, hepatotoxicity 6.3%, chest pain 6.3%, loss of appetite 5.7%, hearing loss 5.2%, acute renal failure 4.7%, headache 3.6%, prolong QT 3.1%, blurring of vision 2.1%, hyperuricemia 1.6%, seizure 1% and psychosis 0.5%.

Conclusion. Adverse drug events associated with second line anti-TB drugs are an important determinant of treatment outcomes. Estimating the incidence and associated factors of adverse drug events provides crucial information for clinicians to identify high risk groups and adjust their drug regimen accordingly for better tolerance to anti-TB drugs to improve the quality of life of patients and to make treatment outcome successful.

Keywords: MDR-TB, adverse drug reactions, PTB, hepatotoxicity, nausea, vomiting

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Outcome of Short Multidrug Resistant Tuberculosis (MDR-TB) Regimen at the Lung Center of the Philippines

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ABSTRACT

Objective. To determine the outcome of shorter regimen for bacteriologically confirmed multidrug resistant tuberculosis (MDR-TB).

Methodology. This is a retrospective observational study of MDR-TB using the shorter regimen under the outpatient Programmatic Management of Drug Resistant Tuberculosis (PMDT) at the Lung Center of the Philippines using moxifloxacin, clofazimine, ethambutol and pyrazinamide throughout and supplemented by kanamycin, prothionamide and high dose Isoniazid in intensive phase. The outcome, the factors associated with the outcome, and the duration of treatment were determined.

Results. Of the 117 enrollees from January 1, 2017 to May 31, 2018 who met the inclusion and exclusion criteria, 68.4% were successfully treated. Of these, 56.4% were cured and 12% had treatment completed. The unsuccessful treatment was 31.6 %: lost to follow up (24.8%), died (4.3%) and not evaluated cases (2.6%). No patient had treatment failure. Majority reported successful treatment within 10 months (55.7%). The median time to successful treatment outcome was also within 10 months. Only adherence to treatment had a crude association with successful ($p<0.001$) and unsuccessful treatment outcomes ($p<0.001$). After adjusting for possible effects of demographic profiles, adherence to treatment was independently associated with both successful and unsuccessful treatment outcomes. After adjusting for possible clinical factors, there was insufficient evidence of significant association between treatment adherence and treatment outcomes.

Conclusion. The success rate (68.4%) of the short, outpatient PMDT regimen for bacteriologically confirmed eligible MDR-TB cases was lower compared to other published studies (83% to 89%), however, it was more effective compared to the conventional regimen (54%).

Keywords: Short Multi-drug Resistant Tuberculosis Regimen, Programmatic Management of Drug Resistant Tuberculosis, Shorter MDR-TB regimen

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Original Article

Predictive Risk Factors for Obstructive Sleep Apnea Among Chronic Obstructive Pulmonary Disease Patients Seen at the Out Patient Department of the Lung Center of the Philippines

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ABSTRACT

Objective. Overlap Syndrome is seen in Chronic Obstructive Pulmonary Disease (COPD) and Obstructive Sleep Apnea (OSA). Symptoms can be nonspecific, subclinical and may mimic other medical conditions, sleep/wake disorders or neuropsychiatric conditions causing the unrecognizable risks and consequences. The objective of the study was to determine predictive risk factors for OSA among COPD patients seen at the outpatient department of the Lung Center of the Philippines.

Methodology. A total of 101 COPD patients were seen and examined at the Out Patient Department of Lung Center of the Philippines after an informed consent was obtained. A physician facilitated interview using 4 sets of questionnaires: (1) a general questionnaire regarding demographic and clinical data, co-morbidities and performance of daily living (2) COPD Assessment Test score (3) comprehensive battery of sleep-related questions using Berlin questionnaire and (4) Epworth Sleepiness Scale.

Results. Among the 101 COPD patients, 48 patients had hypertension – 37 (56.1%) patients with risk of OSA vs 11 (31.4%) patients without risk of OSA, p-value 0.022. Based on GOLD classification for COPD, data showed 66 patients with risk for OSA and 35 patients without risk for OSA – 11 mild [3 (4.5%) with risk of OSA vs 8 (22.9%) without risk of OSA], 37 moderates [28 (42.4%) with risk for OSA vs 9 (25.7%) without risk for OSA], 41 severe [28 (42.4%) with risk for OSA vs 13 (37.1) % without risk of OSA] and 12 very severe [7 (10.6%) with risk of OSA vs 5 (14.3%) without risk of OSA] p-value 0.032.

Conclusion. Hypertension and GOLD classification of moderate and severe COPD were predictive risk factors for OSA among COPD patients.

Keywords: risk factors, COPD, OSA, Overlap Syndrome

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Original Article

The relationship between ambient fine particulate matter and emergency room visits for chronic obstructive pulmonary disease at the Lung Center of the Philippines from August 1, 2015 to August 31, 2017

ABSTRACT

Objective. There is little data about the effect of ambient fine particulate matter (PM2.5) on chronic obstructive pulmonary disease (COPD) in the Philippines. The objective of the study was to investigate the association between ambient PM2.5 and emergency room (ER) visits for COPD at the Lung Center of the Philippines (LCP) from August 1, 2015 to August 31, 2017.

Methodology. A total of 901 ER visits for COPD were recorded. Generalized additive mixed Poisson model was applied to estimate the percentage change in ER visits in relation to an increase in ambient PM2.5 concentration, as measured from the air monitoring station at the LCP.

Results. Background air pollution data in Quezon City showed PM2.5 concentrations below the current National Ambient Air Quality Guideline Value (NAAQGV) in the study period. An unexpected negative association was seen between ambient PM2.5 exposure and COPD-related ER visits.

Conclusion. Ambient PM2.5 was associated with a decrease in COPD-related ER visits. The unexpected results may stem from the low-level PM2.5 in Quezon City and its complex interaction with co-pollutants that we were unable to measure. The ecologic design of the study precludes drawing firm conclusions about association or causality, and further research is needed.

Keywords: COPD, PM2.5, air pollution, emergency room visit

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Original Article

Outcome of Ultrasound Guided Transthoracic Core Needle Biopsy for Peripheral Lung Masses done by Interventional Pulmonologists and Pulmonary Medicine Fellows-In-Training: A Tertiary Level Hospital Experience

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ABSTRACT

Objective. The study aimed to determine the diagnostic outcome and complications of ultrasound guided transthoracic core needle biopsy of peripheral lung mass done by interventional pulmonologists and pulmonary fellows-in-training in a tertiary hospital and to determine their experience in doing the procedure.

Methodology. There were 27 patients who underwent ultrasound guided transthoracic core needle biopsies of peripheral lung masses from October 2018 to March 2019. Diagnostic outcome based on histopathology results and complications were obtained from the procedure logbook in the endoscopy room, patients' charts in the medical records section, and histopathology results (including immunohistochemistry if available) in the database of the said hospital. In the survey questionnaires, the interventional pulmonologist and pulmonary fellows-in-training were asked to answer a set of self-administered questionnaires regarding their experiences in ultrasound guided transthoracic core needle biopsy.

Results. Diagnoses were obtained in 89% (24/27) of the patients. There were only 11% (3/27) with non-specific results. Most of the histopathology results showed malignancy in 74% (20/27). There was only 1 (4%) complication which was significant bleeding. In the survey questionnaires, there were a total of 17 respondents (1 interventional pulmonologist and 16 pulmonary fellows-in-training) included. They have positive responses regarding their experience of the procedure.

Conclusion. Ultrasound guided transthoracic core needle biopsy of peripheral lung mass(es) done by interventional pulmonologist and pulmonary fellows-in-training has a good diagnostic outcome with less complication. The interventional pulmonologist and pulmonary fellows-in-training have positive responses regarding their experience of the procedure.

Keywords: ultrasound guided transthoracic biopsy, core needle, peripheral

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Original Article

Endobronchial Ultrasound (EBUS) Sonographic Features of Mediastinal Lymph Nodes Associated with Malignancy among Patients who underwent Fiberoptic Bronchoscopy (FOB) with EBUS-guided Transbronchial Needle Aspiration Biopsy (TBNA) at a Tertiary Hospital from October 2017 to July 2018

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ABSTRACT

Objective. Endobronchial ultrasound (EBUS) is a diagnostic procedure that utilizes ultrasound during fiberoptic bronchoscopy (FOB) to visualize airway walls to diagnose and stage mediastinal lesions and pulmonary malignancies. There are certain sonographic findings on EBUS that are suggestive of a malignancy, however there is no study done among Filipinos that will describe sonographic features noted on locally performed EBUS and its association with the presence of malignancy. Analyzing data from local experience may help guide future bronchoscopists and increase the yield of this diagnostic tool.

Methodology. This study used a cross-sectional study design to determine the EBUS sonographic features of mediastinal lymph nodes associated with malignancy among patients who underwent FOB with EBUS-guided transbronchial needle aspiration (TBNA) biopsy at LCP from October 2017 to July 2018. The tumor descriptions included are location and size by imaging, and histopathologic report. The EBUS sonographic features included are size (short and long axis), shape, echogenicity, margin, biopsy location, and presence of necrosis, matting, calcification or vascularity.

Results. A total of 84 lymph nodes from 54 patients were included in the study. Majority of the included patients were males with an age more than 60 years old. 66.7% of these patients had malignant lymph nodes (95% CI: 52.5% to 78.9%). Those with malignant findings were older (59.5 vs. 51 years) and had history of smoking (66.7% vs 25.7%). Most of the lymph nodes sampled were from station 4R (31%), 4L (28.6%) and station 7 lymph nodes (27.4%).

Conclusion. A higher percentage of malignant lymph nodes are noted to be of larger sizes (>20mm in short and long axis), round shape, with heterogonous echogenicity, well-defined margins, presence of necrosis, absence of matting and calcification, and with mixed vascular pattern. After application of the risk scoring system, it was noted that a score of 0 to 1 was common in benign lymph nodes while a score of more than 1 (2 to 4) was sensitive (94.34%) but not specific (19.3%) for the presence of malignancy.

Keywords: endobronchial ultrasound (EBUS), fiberoptic bronchoscopy (FOB), transbronchial needle aspiration (TBNA), sonographic features, mediastinal lymph nodes, malignancy

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Original Article

Factors Associated with One-Year Readmission of COPD Patient due to Exacerbation in Lung Center of the Philippines from January 2015 to January 2018

ABSTRACT

Objective. The aim of the study was to identify potential factors for hospital readmissions among patients with COPD on exacerbation. This will be helpful in identify intervention strategies to minimize readmissions.

Methodology. A total of 233 COPD patients were included in the study. They were at least 40 years old diagnosed with COPD in exacerbation that had previous admission at the Lung Center of the Philippines (LCP) or from other institutions who had readmission in LCP within a year from the index admission from January 2015 to January 2018.

Results. Age is a significant factor (p = 0.0001), specifically above 65 years old, is 12.5 times (95% CI 6.25 to 25.0) more likely to be re-admitted within a year. Those with at least 60 pCO_2 level are 2.39 times (95% CI 1.38 to 4.13) more likely to be re-admitted within a year as compared to those with below 60 levels. Those with pneumonia is 18.09 times (95% CI 8.99 to 36.4) more likely to be readmitted as compared to those without pneumonia and those with heart failure is 2.09 times (95% CI 1.12 to 3.89) more likely to be re-admitted within a year as compared to those without heart failure. Those who smoked at least 20 sticks per day is 2.18 times (95% CI 1.20 to 3.95) more likely to be re-admitted within a year as compared to those who smoked less than 20 sticks per day. Patients who were non-compliant the prescribed inhaler is 3.35 times (95% CI 1.88 to 5.96) more likely to be readmitted within a year as compared to those who were compliant.

Conclusion. Age, pCO_2 level, presence of pneumonia and heart failure, number of cigarette sticks used during their period of smoking, and compliance to inhaler, were identified as significant factors for re-admission.

Keywords: Chronic Obstructive Pulmonary Disease (COPD) in exacerbation, readmission, Lung Center of the Philippines

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Original Article

Prevalence of Anxiety and Depressive Symptoms using the Hospital Anxiety and Depression Scale (HADS) among Adult Filipino Patients with Obstructive Sleep Apnea (OSA) at the Lung Center of the Philippines

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ABSTRACT

Objective. Anxiety and depression often complicate medical conditions including obstructive sleep apnea (OSA). This study aimed to determine the number of OSA patients manifesting with anxiety and depressive symptoms and evaluate the association of these symptoms with age, sex, body mass index (BMI), severity of obstructive sleep apnea, and presence of comorbid medical conditions.

Methodology. Data were collected from adult patients diagnosed with obstructive sleep apnea by nocturnal polysomnogram. Presence of anxiety or depressive symptoms was assessed using the Hospital Anxiety and Depression Scale (HADS) questionnaire.

Results. This study included 57 OSA patients (42 male and 15 female) with an average age of 42 years. Prevalence of anxiety symptoms was 29.8% (95% CI: 18.4%, 43.4%) while the prevalence of depressive symptoms was 14% (95% CI: 6.3%, 25.8%). Patients with anxiety had higher average Apnea-Hypopnea Index (AHI) (106 vs. 64) and had existing comorbid medical conditions (64.7% vs. 35%). Greater proportions of those with depressive symptoms were morbidly obese (62.5% vs. 10.2%).

Conclusion. Anxiety and depressive symptoms are present in patients with OSA. Routinely screening for these symptoms is warranted and highly recommended to provide holistic care for the patient.

Keywords: HADS, anxiety, depression, OSA

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Original Article

The Lung Center of the Philippines' outcome of Convex-Probe Endobronchial Ultrasound Guided Transbronchial Needle Aspiration (CP-EBUS-TBNA) Among Patients with Mediastinal Lymphadenopathy and Central Mass(es): A Preliminary Report (Phoebus Report)

ABSTRACT

Objective. Convex-probe Endobronchial ultrasound guided transbronchial needle aspiration (CP-EBUS-TBNA) is a minimally invasive diagnostic test with a high diagnostic yield for suspicious mediastinal lymphadenopathy and central mass. The objective of the study is to determine the outcome of convex-probe endobronchial ultrasound guided transbronchial needle aspiration (CP-EBUS-TBNA) among patients with mediastinal lymphadenopathy and central mass(es) in the Lung Center of the Philippines (LCP) conducted from October 2017 to October 2018.

Methodology. A retrospective chart and cytopathologic review were done for 70 adult patients with mediastinal lymphadenopathy and central mass(es) who underwent CP-EBUS-TBNA at the LCP between October 2017 to October 2018.

Results. The average diagnostic yield for all the subjects was 94.3% (95% CI: 86.0- 98.4%). Among the patients with diagnostic result, 67.1% (95% CI: 54.9-77.9%) of patients were malignant bronchogenic carcinoma and 27.1% (95% CI: 17.2-39.1%) for tuberculosis. The rate of complication among patients who underwent EBUS-TBNA was minimal (2.9% (95% CI: 0.3-9.9%) and complications noted were bronchospasm and hypoxemia only.

Conclusion. Convex probe endobronchial ultrasound-guided transbronchial needle aspiration (CP-EBUS-TBNA) is a safe and highly effective diagnostic procedure for the cytologic examination of mediastinal lymphadenopathy and central mass(es).

Keywords: CP-EBUS-TBNA, mediastinal lymphadenopathy, central mass

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Original Article

Optimal Cutoff Values in Improving the Accuracy of Cuff Leak Test and Laryngeal Ultrasonography in Predicting Post extubation Clinically Significant Laryngeal Edema in Critical Care Patients in Lung Center of the Philippines

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ABSTRACT

Objective. Inherent risk of endotracheal tube extubation is laryngeal edema. If clinically significant, it may lead to extubation failure, reintubation, and subsequent multitude of other complications. Laryngeal edema being a consequence of extubation, predictive diagnostic test utilization is critically important. Non-invasive test such as cuff leak test (CLT) and laryngeal ultrasonography (LUS) have been employed. In this study, we aimed to determine the cutoff value of CLT and LUS in predicting clinically significant laryngeal edema applicable in intubated critical care patients of Lung Center of the Philippines.

Methodology. A total of 80 mechanically ventilated adult patients in critical care units, wards, and recovery room, evaluated ready for extubation were tested using CLT and LUS prior to endotracheal tube liberation. Patients were observed within 24 hours for post extubation stridor, wheezing, desaturations, and respiratory distress as clinically significant symptoms of laryngeal edema.

Results. Of the 80 intubated patients evaluated, clinically significant laryngeal edema was present in 12.5% of patients. Of the 10 patients noted with clinically significant laryngeal edema 3.8% were observed to developed post extubation stridor. Accuracy of the cuff leak test and the laryngeal ultrasound was 96.1% and 86.2%, respectively. The optimal cutoff value for cuff leak volume was 13% with sensitivity and specificity of 100% and 91.4%, respectively. The optimal cutoff value for air column width difference was 33 mm with sensitivity and specificity were 100% and 70%, respectively. Negative predictive values were 100% for both tests. Positive predictive values for CLT and LUS were 62.5% and 32 % respectively.

Conclusion. Both CLT and LUS showed high accuracy rate in predicting post extubation clinically significant laryngeal edema, being CLT higher than LUS. Both tests showed high sensitivity, specificity, and negative predictive value. However, positive predictive values for both tests were significantly low.

Keywords: cuff leak test, laryngeal ultrasound, post extubation stridor, laryngeal edema, extubation, optimal cut off value, critical care, cuff leak volume, air column width difference

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Original Article

The Usefulness of Neutrophil to Lymphocyte Ratio as a Predictor of Successful Mechanical Ventilator Weaning in Patients with Acute Respiratory Failure from Chronic Obstructive Pulmonary Disease Exacerbation

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ABSTRACT

Objective. Acute exacerbation of Chronic Obstructive Pulmonary Disease (AECOPD), especially during infections, is among the most frequent reasons for hospitalization. Increasing evidence that COPD is a multicomponent disease in which systemic inflammation is commonly present. The ratio of neutrophils to lymphocytes (NLR), which is calculated from complete blood count with differential, is an inexpensive widely available marker of inflammation. This study aimed to evaluate the usefulness of NLR in patients with respiratory failure from COPD exacerbation and compare it with Rapid Shallow Breathing Index (RSBI), as a predictor of successful mechanical ventilator weaning.

Methodology. Forty-eight (48) patients who are intubated due to AECOPD were included. Peripheral complete count samples were taken on the day of intubation and the convalescent period wherein the patient is ready for weaning. RSBI was performed by a respiratory therapist during weaning to compare it with the NLR. The optimum cut off value between NLR versus RSBI which yields ideal specificity, sensitivity, likelihood ratios, positive and negative predictive values were determined.

Results. Of the NLR, the optimal cut-off point was 10 with sensitivity of 50% and specificity of 66.7%. Among those with NLR of 10 or below, the probability of a successful mechanical ventilator weaning was 33.3%. Among those with NLR above 10, the probability of a failed mechanical ventilator weaning was 80%. Positive likelihood ratio was 150% and the negative likelihood ratio was 75. While for the RSBI, the optimal cut-off value was 124 with sensitivity of 33.3% and specificity of 97.2%. Of those with RSBI of 126 or below, the probability of a successful mechanical ventilator weaning was 80%. Among those with RSBI above 124, the probability of a failed mechanical ventilator weaning was 81.4%.

Conclusion. There was insufficient evidence to show that the NLR is an accurate indicator of successful mechanical ventilator weaning in patients with acute respiratory failure secondary to COPD.

Keywords: weaning, neutrophil to lymphocyte ratio, NLR, chronic obstructive pulmonary disease, COPD

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Original Article

The Impact of Adherence to Recommended Guidelines for Switching Antibiotics from IV to Oral on Clinical Outcomes of Patients Admitted for Community Acquired Pneumonia-Moderate Risk at the Lung Center of the Philippines from January 2015 to Dec 2016: A Retrospective Cohort Study

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ABSTRACT

Objective. This study aimed to evaluate the adherence to recommended guidelines for early antibiotic switching of IV to oral route in the management of patients admitted for community acquired pneumonia

Methodology. This was a retrospective cohort study. Patients with community acquired pneumonia moderate risk, admitted at the Lung Center of the Philippines between January 2015 and December 2016 were included.

Results. The study included 221 patients, 57% of whom were male and the average age was 71 years (19-98). The most common signs and symptoms were cough (100%), sputum production (98.6%), dyspnea (94.1%) and rales (92.8%). Majority of patients had concomitant diabetes (24.9%) and COPD (16.7%). Of the 208 patients without treatment failure, 44.7% were adherent to early switch strategy while 55.3% were non-adherent and 22.1% completed at least 7 days of IV antibiotics. On 3-day and 30-day follow-up, clinical parameters and patient outcome were comparable between the groups. Length of hospital stay was significantly shorter among adherents than the non-adherents (4 days vs 5 vs 8, $p<0.0001$). Overall median survival time was 6 days (SE = 0.279, 95% CI: 5.453, 6.547). Median survival time was significantly different between groups (5 vs 5 vs 9 days; $p<0.0001$). There was also significantly different median survival time between those who are adherent and non-adherent to early switch (5 vs 7 days; $p = 0.001$).

Conclusion. Patients may be safely switched from IV to oral antibiotics, once clinically stable, without negative impact on their clinical outcome. Those who were adhered to early antibiotic switch strategy had shorter length of hospital stay. However, most physicians are still non-adherent to early switch from IV to oral antibiotics.

Keywords: early antibiotic switch, community acquired pneumonia, clinical outcomes

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Original Article

Comparison of the Progression Free Survival (PFS) among Epidermal Growth Factor Receptor (EGFR) positive and EGFR negative Metastatic Non-Small Cell Lung Cancer (NSCLC) patients receiving Platinum-Based Chemotherapy

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ABSTRACT

Objective. This study aimed to compare the Progression Free Survival (PFS) between EGFR-positive and EGFR-negative Metastatic NSCLC receiving Platinum-Based Chemotherapy in Lung Center of the Philippines.

Methodology. This study was a retrospective, cohort study of patients diagnosed with stage IV Non-small Cell Lung Cancer who received platinum-based chemotherapy. Clinical data from the medical records were reviewed, comparing PFS between EGFR-positive and EGFR-negative patients in our institution between January 2015 to December 2016.

Results. In total, 28 patients were included for final analysis. Among the patients, 53.6% were positive for EGFR and 93.3% adenocarcinoma subtype. It is more common among women between 51-60 years old (40.0%), past smokers (60%) and with <10% weight loss (66.7%). The median PFS was 6.4 months, and was comparable between EGFR-negative NSCLC group (7.0 vs 4.8, p = 0.708). Further results showed no significant association between progression fee survival and epidermal growth factor receptor (p = 0.720, HR = 0.854, 95% CI: 0.372, 1.963).

Conclusion. EGFR-positive NSCLC showed comparable PFS with EGFR-negative NSCLC receiving the same platinum-based chemotherapy.

Keywords: PFS, progression free survival, EGFR, epidermal growth factor, NSLCL, non small cell cancer

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Original Article

A Cross Sectional Study on the Predictors of Obesity Hypoventilation Syndrome among patients with Obstructive Sleep Apnea seen at the Lung Center of the Philippines

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ABSTRACT

Objective. The study aimed to determine the predictors of Obesity hypoventilation syndrome (OHS) among patients with Obstructive Sleep Apnea (OSA) seen at the Lung Center of the Philippines (LCP).

Methodology. This is a cross-sectional analytical study involving review of medical records of patients who underwent polysomnography with end tidal carbon dioxide ($EtCO_2$) in the sleep laboratory at the LCP.

Results. A total of 127 obese OSA patients with a mean age of 41 years old were recruited. Of the 127 subjects, 32.3% (41 out of 127) had OHS. In comparison between OHS versus Eucapnic OSA group we found that OHS patients had significantly higher BMI (43.4 (10.1) versus 35.6 (7.6), ($p<0.0001$), higher Mallampati score (4.0 (1.0) versus (3.0 (1.0), ($p<0.009$), higher ESS score (16.0 (7.0) versus 12.0 (7.0) ($p<0.002$) and higher neck circumference (46.0 (6.0) versus 44.0 (4.0) ($p<0.008$). Polysomnographic parameters also showed that subject with OHS had significantly higher respiratory disturbance index ($p<0.0001$), oxygen desaturation index ($p<0.0001$), sleep time with $SpO_2 < 90\%$ ($p<0.0001$) and maximum end-tidal $PaCO_2$ ($p<0.0001$). The average awake SpO_2 ($p<0.0001$), nocturnal mean ($p<0.0001$) and lowest SpO_2 ($p<0.0001$) were also significantly lower in subjects with OHS. Continuous positive airway pressure (CPAP) therapy was more common in patients with eucapnic OSA but pressure was significantly lower than that in patient with OHS (10 (3) versus (14 (3), ($p<0.0001$). Bi-level positive airway pressure therapy was more commonly needed in 41.5% of subjects with OHS compared with 4% of subject's eucapnic OSA. Multivariate logistic regression analysis correlated with maximum end-tidal PCO_2 showed that body mass index ≥ 35.6 kg/m^2, nocturnal mean $SpO_2 \leq 93\%$, sleep time with $SpO_2 < 90\% \geq 60$ minutes and Mallampati score ≥ 4 were related factors for obesity hypoventilation syndrome.

Conclusion. The prevalence of OHS among patients with OSA at the LCP was 32.3%. The following cut off points can be used as predictors for early diagnosis of OHS: body mass index ≥ 35.6 kg/m$_2$, nocturnal mean $SpO_2 \leq 93\%$, sleep time with $SpO_2 < 90\% \geq 60$ minutes and Mallampati score ≥ 4.

Keywords: OSH, OSA, obesity hypoventilation syndrome, obstructive sleep apnea

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Original Article

The DOH-LCP Quitline Program: Participant Profiles and Outcomes of an Initial Cohort in the First Year of Implementation

ABSTRACT

Objective. The general objective of this study is to describe the participant profiles and outcomes of an initial cohort in the first year of implementation. This study would determine the demographic characteristics of those who called the Quitline, to determine the quit rate of smokers who would want to quit and called the Quitline, to determine the factors that could influence success in quitting, determining if there were improvements in the stage of change by Prochaska and Di Clementi after telephone counseling.

Methodology. This was a retrospective observational descriptive cohort study among callers of the DOH-LCP Quitline at Lung Center of the Philippines from June 2017 to March 2018.

Results. There are 191 callers who initially availed of the Quitline service. The computed quit rate was 18.4 % which was comparable to international values of 19.8% in the first half of 2017, with an average of 15.7% in the last decade. They have a mean age of 43 ± 15 years. A little more than 7 in 10 were males. More than half were married, while 31 % were single. Three fourths had a college education and 67 % were working. There were no detected differences in the baseline characteristics of callers who succeeded in quitting smoke and those who were unsuccessful. The median age of first smoke was 18 years old while the median duration of habit of smoking was 23 years old. About 2 in 5 smoked up to 10 cigarettes per day while 46 % said they averaged 11-20 sticks per day. The top three indicated reasons for smoking were peer pressure, stress, and family problem. The most frequent patterns were after meals and mornings. Stress as reason for smoking and pattern of smoking at work were more frequent among successful quitters as compared to failed quitters. On the other hand, failed quitters had a greater proportion who cited boredom as reason for smoking. Most callers have several previous attempts to quit smoking, although another 25 % have not tried before. More than a third of callers lasted up to a week smoke free. There was more than a fourth who were able to keep from smoking for at least a month. Almost all callers tried various methods of cessation of smoking, but only 46 % have attempted cold turkey. Withdrawal symptoms most commonly reported were craving, salivating, and irritability. Craving is the most cited reason for relapse followed by peer pressure and environmental stressors. The most common reason for wanting to quit smoking was mainly due to health reason. The interventions applied were cold turkey method with counselling and progressive reduction. Those who were smoke free at the end of 6 months were noted to have a higher percentage with an intervention of cold turkey method as compared to the group of quit failures. Noted barriers to quitting both at pre-counseling and at 3 months was craving followed by withdrawal symptoms. At 6 months the only mentioned issue was weight gain. From the prospective of different stages of readiness to quit, half were already at preparation stage when they enrolled the Quitline, 19% were at precontemplation stage initially, 16% were at contemplation stage, and 15% were at action stage. Only one was at maintenance stage.

Conclusion. The DOH -LCP Quitline Program is an effective tool to tobacco cessation wherein we were able to apply the different levels of framework of interventions for smoking cessation with a wider reach of population, knowing the demographic profiles of those who called the Quitline, determining the quit rate of smokers who called the Quitline, and identifying possible factors that could influence success in quitting.

Keywords: DOH-LCP Quitline program, smoking cessation

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Original Article

Biochemical Parameters of Pleural fluid (pH, LDH and Glucose) as Predictor of Talc Pleurodesis Outcome in Malignant Pleural Effusion

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ABSTRACT

Objective. Pleurodesis fails in 10–40% of patients with malignant pleural effusion. Identification of patients who will experience an unsuccessful or successful talc pleurodesis would be helpful. The aim of this study was to correlate the values of pleural fluid biochemical parameters (pH, glucose, LDH) to talc pleurodesis outcome among patients with malignant pleural effusion.

Methodology. This is a prospective cohort study. Between March to December 2017, 23 patients with malignant pleural effusion aged 18 years old and above who met the inclusion criteria were recruited. Talc pleurodesis was done and was delivered via thoracoscopy (talc poudrage) or tube thoracostomy (talc slurry). Before pleurodesis, pleural tapping and initial pleural fluid biochemical parameters (pH, LDH and glucose) were measured using RxL Max chemistry analyzer. All patients were then followed up and outcome was determined according to their radiographic response after 14 ± 3 days and 30 ± 3 days whether it was complete response, partial response or treatment failure.

Results. 26.1% had complete response while 73.9% had partial response at early and late follow-up visits. Proportions of treatment response were comparable between talc pleurodesis process. There was no failure of pleurodesis in this study. Observed overall average glucose level was 5.9 mmol/L (106.3 mg/dL), average pleural pH level was 8.5 while average pleural LDH level was 315.0 IU/L. Correlation analysis between biochemical parameters of pleural fluid showed insufficient evidence of significant association. Biochemical parameters of pleural fluid were comparable between talc pleurodesis process (talc poudrage or talc slurry) and between treatment responses. No morbidity complications and mortality cases were reported.

Conclusion. Observed pleural fluid among 23 subjects was high glucose and pH and low LDH. However, correlation analysis between these variables showed insufficient evidence of significant association. The power to detect a relationship between variables may have been minimal due to limited study population. A larger scale study is recommended whether biochemical parameters (pH, glucose, and LDH) of the pleural fluid aspirate can predict the outcome of talc pleurodesis in adult patients with malignant pleural effusion.

Keywords: talc pleurodesis, malignant pleural effusion, talc poudrage, talc slurry

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Original Article

Outcome of protocol-directed versus non-protocol-directed weaning from mechanical ventilation among ICU patients in Lung Center of the Philippines

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ABSTRACT

Objective. The study aimed to determine the outcome of protocol-directed weaning in terms of extubation success rate, duration of weaning and days intubated, length of ICU and hospital days, and adverse events.

Methodology. This is a single-center, randomized, cohort study involving mechanically ventilated patients in the ICU. The 2015 LCP Clinical Protocol of Weaning was instituted to the protocol-directed weaning group. Enrolled patients in both groups were followed-up in 24, 48, 72 hours from initiation of weaning up to extubation.

Results. Out of the 51 patients enrolled, 25 (49%) underwent protocolized weaning. Success rate in protocol-directed weaning was 60% and 80% in non-protocol directed ($p = 0.104$). The average duration of weaning in protocol-directed group was 24 hrs. vs 48 hrs. ($p = 0.179$) while period intubated was 12 vs 6.5 days ($p = 0.068$). In the protocol-driven group, the average length of ICU stay was 13 vs 8.5 days ($p = 0.122$) whereas hospital stay was 18 vs 16 days ($p = 0.770$). During weaning, nosocomial pneumonia (16%, $p = 0.419$), re-intubation at less than 48 hrs. (8%, $p = 0.235$) and self-extubation (8%, $p = 0.610$) were reported in patients with protocol-directed weaning. After weaning, adverse events reported in protocol-directed group were ventilator associated pneumonia (24%, $p = 0.406$), tracheostomy (8%, $p = 0.191$) and reintubation more than 48 hrs. (4%, $p = 0.61$). Mortality rate was 24% vs 15% ($p = 0.49$). Comparisons with non-protocol-directed weaning showed insufficient evidence of significant differences.

Conclusion. The use of a protocol-directed weaning, compared to non-protocol directed weaning, did not improve outcomes in terms of extubation success rates, decreasing weaning and intubation days, lesser duration of ICU and hospital days, and adverse events.

Keywords: intensive care unit, mechanical ventilation, protocol-directed weaning

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Original Article

Clinical Effectiveness of Pulmonary Rehabilitation in Mechanically Ventilated Patients admitted at Lung Center of the Philippines

ABSTRACT

Objective. The objective of this study is to determine the clinical effectiveness of pulmonary rehabilitation in terms of improving weaning outcome, reducing the incidence of VAP, and decreasing the duration of mechanical ventilation, intensive care unit (ICU) stay and hospital stay.

Methodology. This was a prospective randomized controlled clinical trial. Thirty-nine (39) mechanically ventilated patients were enrolled in this study, of which 19 underwent pulmonary rehabilitation (PR) using the Lung Center of the Philippines'pulmonary rehabilitation protocol and 20 were randomized to control group (CR) (standard nursing and medical care). Outcome measures included weaning outcome, incidence of ventilator acquired pneumonia, and duration of mechanical ventilation, ICU stay, and hospital stay.

Results. There was a trend towards higher rate of weaning success in the PR (PR 47% vs CR 40% p = 0.764), greater incidence of VAP in the PR (PR 26% vs CR 15%, p = 0.663) and longer duration of hospitalization in the PR (PR 20 days vs CR 13 days, p = 0.255). No trend was observed in the duration of mechanical ventilation (PR 6 days vs CR 7 days, p = 0.741) and duration of stay in the ICU (PR 9.0 days vs CR 8 days, p = 0.830). Despite the trends observed on some outcome measures, there was insufficient evidence of significant differences between PR and CR with respect to the outcome measures in this study.

Conclusion. There is insufficient evidence to demonstrate the clinical effectiveness of pulmonary rehabilitation in improving the weaning outcome, reducing the incidence of VAP, and decreasing the duration of mechanical ventilation, ICU stay and hospital stay. A sub-analysis in the PR has demonstrated that the earlier the initiation of pulmonary rehabilitation (2nd day vs 3rd day vs 4th day), resulted in better outcome in terms of weaning, VAP, and ICU stay.

Keywords: pulmonary rehabilitation, mechanical ventilation

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Original Article

A Cross Sectional Study on the Detection of Level of Volatile Organic Compounds in Exhaled Alveolar Breath among Patients with Active Pulmonary Tuberculosis Using Nanomaterial based sensors

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ABSTRACT

Objective. This study aimed to determine the level of volatile organic compounds exhaled among group of patients classified as patients with bacteriologically confirmed tuberculosis, clinically diagnosed tuberculosis, and those of healthy patients using a nanomaterial-based sensors for volatile organic compounds in the detection of active pulmonary tuberculosis.

Methodology. This is a cross sectional study in which patients seen at the Lung Center of the Philippines were grouped into three namely: bacteriologically confirmed tuberculosis, clinically diagnosed tuberculosis and healthy patients. The level of volatile organic compounds from their exhaled alveolar breath was determined using a nanomaterial-based sensors.

Results. Symptomatic men both positive in sputum AFB stain and chest-x-ray results had significantly higher average volatile organic compounds than either symptomatic men with negative sputum AFB stain but positive chest x-ray results or asymptomatic men.

Conclusion. Nanomaterial-based sensors can detect level of exhaled volatile organic compounds in patients with active pulmonary tuberculosis. These sensors may be used in a larger population to determine levels of volatile organic compounds suited to diagnose active pulmonary tuberculosis.

Keywords: volatile organic compounds, nanomaterial based sensors, pulmonary tuberculosis

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Original Article

Serum Magnesium Levels in Acute Exacerbation of COPD Patients during admission and two weeks after discharge in the Lung Center of the Philippines

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ABSTRACT

Objective. This study aimed to determine and compare the magnesium levels of COPD patients during acute exacerbation and two weeks after discharge in order to assess the effect of serum magnesium in maintaining disease stability in acute exacerbation of COPD (AECOPD) patients.

Methodology. This is a descriptive cohort study involving 75 patients of COPD admitted as acute exacerbations from April 2017 to March 2018. These patients underwent serum magnesium determination during admission and 2 weeks after hospital discharge.

Results. A total number of 75 patients with COPD presenting as acute exacerbation were included in this study and followed up at the OPD 2 weeks after discharge as stable COPD. The average age of 75 AECOPD patients which ranged from 45 to 87 years was 67.40 ± 10.46 years. Hypomagnesaemia was present in 46.7% of patients with AECOPD while 53.3% had normomagnesemia. Compared to stable COPD patients 2 weeks after discharge, there was 0% hypomagnesemia while 100% of the patients had normomagnesemia. The mean serum magnesium was 0.73 ± 0.12 in AECOPD patients compared to the mean serum magnesium of 0.82 ± 0.09 mg/dl in stable COPD (p value < 0.001). There was a highly significant association between COPD GOLD stage and hypomagnesemia during acute exacerbation ($p<0.0001$). COPD GOLD stages 3 (crude OR: 18.667, $p = 0.012$) or 4 (crude OR: 28.000, $p = 0.012$) had significant higher risk of hypomagnesemia than COPD GOLD stage 1. On correlation between serum magnesium levels during acute exacerbation and two weeks after discharge, there was a highly significant positive moderate correlation ($r = 0.447$, $p<0.0001$). All magnesium levels at follow-up increased even in patients who were initially having normal serum magnesium levels.

Conclusion. The incidence of hypomagnesemia was found to be higher in patients with AECOPD in acute exacerbation compared to stable COPD patients. Serum magnesium levels were lower in patients with AECOPD compared to stable COPD patients. Hypomagnesemia was highly associated with COPD stage 3 and 4. A decrease in serum magnesium level could be associated with acute exacerbations of COPD. We suggest monitoring of serum magnesium levels in COPD patients with acute exacerbation.

Keywords: magnesium, COPD, hypomagnesemia

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Original Article

The Prognostic Value of Neutrophil to Lymphocyte Ratio and Platelet to Lymphocyte Ratio in Predicting Adverse Outcomes among Admitted Patients with Chronic Obstructive Pulmonary Disease with Acute Exacerbation at a Tertiary Hospital: A Five-Year Retrospective Cohort Study

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ABSTRACT

Objective. This study aimed to correlate the levels of Neutrophil to Lymphocyte Ratio (NLR) and Platelet to Lymphocyte Ratio (PLR) with the treatment outcomes of admitted Chronic Obstructive Pulmonary Disease (COPD) patients by measuring the duration of hospital stay, development of co-morbidities, frequency of exacerbations and in-hospital mortality.

Methodology. This is a retrospective cohort study. Charts of patients who were admitted at the Lung Center of the Philippines (LCP) due to an acute exacerbation of COPD (AECOPD) from January 1, 2013 to December 31, 2017 were reviewed. Demographics, co-morbidities, FEV1 and Complete Blood Count were obtained. COPD patients who were hospitalized for specific (secondary) cases such as pneumonia, lung cancer, interstitial pulmonary disease, asthma, bronchiectasis and active pulmonary tuberculosis were excluded in this study.

Results. The study included 343 COPD patients in acute exacerbation. Correlation and multivariate analysis did not show significant association between levels of NLR, frequency of exacerbation and in-hospital mortality (rho = -0.085, p = 0.118). Correlation analysis, however, showed a significant very weak association with hospital stay (rho = 0.106, p = 0.050). Levels of NLR were, however, significantly associated with length of hospital stay. Patients with NLR between the 25th and 50th percentile had shorter hospital stay than those above the 75th percentile. For the PLR, there was no significant crude association of levels of PLR and frequency of exacerbation episodes, length of hospital stays and in-hospital mortality. Correlation analysis also showed similar results (rho = -0.073, p = 0.180; rho = -0.016, p = 0.767).There was no significant crude association between levels of PLR and morbidities except need for intubation.

Conclusion. This study demonstrated that novel inflammatory markers NLR and PLR did not elicit significant evidence in terms of frequency of exacerbations and in hospital mortality. However, it was noted that higher levels of NLR were associated with prolonged hospital stay and higher levels of PLR led to more incidences of endotracheal intubation. Further investigational studies should be performed to verify the validity of this marker among patients admitted due to COPD.

Keywords: neutrophil lymphocyte ratio, platelet lymphocyte ratio, chronic obstructive pulmonary disease, adverse clinical outcomes

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The Determination of Fractional Exhaled Nitric Oxide Levels of Stable Bronchiectasis Adult Patients at the Lung Center of the Philippines

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ABSTRACT

Objective. This is a prospective observational study conducted from August 2017 until November 2017 at the outpatient department to determine the association between fractional exhaled nitric oxide (FENO) levels and severity using FACED score among stable bronchiectasis adult patients seen at the Lung Center of the Philippines (LCP).

Methodology. All patients clinically diagnosed with stable bronchiectasis seen at the outpatient department were included in the study after signing an informed consent form. Severity of the bronchiectasis was determined in all subjects enrolled using the FACED scoring as mild, moderate or severe. They were then subjected to FENO test using NO breath™, FENO breath monitor manufactured by Bedfont® Scientific, Ltd. Multinomial logistic regression analysis was performed to determine any significant relationship between FENO test level and severity of bronchiectasis. Demographic characteristics, clinical presentation, etiology, dyspnea scoring using mMRC, results of sputum culture, radiographic extent and results of spirometry were obtained on all subjects.

Results. There were 67 subjects enrolled in the study; 39 (58.2%) were females, and majority, 56 (83.6 %) were less than 70 years old. 26 (38.8%) were smokers. Common clinical manifestations were minimal sputum production, cough, and dyspnea. 30 (44.8%) had dyspnea of MRC grade 2 and greater. The most common etiology of bronchiectasis was previous tuberculosis seen in 48 (72.7%) of the subjects, while 3 (4.5 %) were diagnosed previously with COPD, and 15 (22.7 %) had both post infectious bronchiectasis and COPD. Spirometry showed an FEV1 of less than 50% in 44 (65.7%). Only in 2 (3%) were positive for Pseudomonas in sputum cultures. The radiographic extent of the bronchiectasis involved two or more lobes in 52 (77.6%). The severity of bronchiectasis of the 67 enrolled subjects based on FACED scoring was mild in 17 (25.4%), moderate in 25 (37.3%), and severe in 25 (37.3%). Forty (40) (59.7%) of the patients recorded FENO levels of less than 25 parts per billion (ppb). No significant association between FENO and FACED score ($p = 0.822$) was shown. Average FENO in were also not significantly different across severity of bronchiectasis ($p = 0.919$).

Conclusion. Among patients with bronchiectasis in the LCP, majority of whom were caused by previous tuberculosis infection and over half with moderate to severe FACED score severity, FENO levels were low (less than 25 ppb). There was no significant association between FENO levels and severity of bronchiectasis based on FACED scoring.

Keywords: fractional exhaled nitric oxide, FeNO, bronchiectasis

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Original Article

A 3-Year Study on the Incidence and Predictors of Early Complications resulting from CT-Guided Transthoracic Biopsy at the Lung Center of the Philippines

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ABSTRACT

Objective. CT-guided transthoracic biopsy remains one of the primary modalities in the diagnosis of intrathoracic lesions. A small percentage of complications would inevitably occur in the performance of such an invasive procedure. The occurrence of pneumothorax and hemoptysis were the endpoints of concern, since significant pneumothorax would necessitate evacuation, and even minimal post-procedural hemoptysis would prove distressing to patients. This is a 3-year study that aimed to determine the incidence and predictors of early complications resulting from CT-guided transthoracic biopsy at the Lung Center of the Philippines.

Methodology. Two thousand one hundred thirty three (2133) patients who underwent CT-guided transthoracic biopsy were included. Review of records determined occurrence of complications noted immediately post-biopsy. Patient age, biopsy type, and length of biopsy needle tract through the lung were analyzed to determine causality.

Results. Overall complication rate was 9.6%. Subjects that underwent FNAB had 4.01% pneumothorax rate and 5.7% hemoptysis rate. Complication rates for core biopsy were 0% for pneumothorax and 4.4% for hemoptysis. Chest tube placement was performed in 8.3% of pneumothorax. Only the distance traversed by the needle through the lung parenchyma showed a significant relationship with the occurrence of complications ($p<0.001$). Longer distance showed progressively higher odds for developing complications.

Conclusion. CT-guided transthoracic biopsy is a safe diagnostic tool. Only the biopsy tract length showed correlation with complication incidence, shown by increasing odds ratios with longer tracts (Adjusted OR starting at 2.501 for 0.2-1.0 cm [$p = 0.013$] to 8.297 for > 4 cm [$p = 0.000$], with greatest OR of 9.709 lengths of 3.1-4.0 cm [$p = 0.000$] the complication rates immediately post-procedure at our institution are comparable to data in published literature.

Keywords: CT-Scan guided transthoracic biopsy, complications, hemoptysis, pneumothorax

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

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ABSTRACT

Objective. Manual Cytology is an integral diagnostic tool in evaluation of lung cancer but has several methodological 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 (LCP).

Methodology. A total of 112 patients suspected for lung cancer seen in LCP who underwent fiber optic bronchoscopy and bronchial washing were collected. Specimen per patient was 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% were 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 NSCLC, adenocarcinoma, and 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 and adenocarcinoma, and SCLC.

Keywords: Automated quantitative image cytometry, ClearCyte™, bronchial washings, lung cancer, manual cytology, lung cancer diagnosis, cell block, sensitivity, specificity

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The Role of Serum Neutrophil-Lymphocyte Count Ratio in the Differential Diagnosis between Tuberculosis and Lung Cancer

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ABSTRACT

Objective. Tuberculosis (TB) is a well-known diagnostic chameleon and can also resemble malignancy. TB can mimic all pathological considerations of the lung and can present in many various forms and appearances. On the other hand, lung cancer is often radiographically confused with TB, especially in the regions where TB is endemic like in the Philippines. These will lead to delay in the correct diagnosis, treatment, as well as exposure to inappropriate medications or no treatment at all. The neutrophil to lymphocyte count ratio (NLR), representing a combination of circulating neutrophil and lymphocyte counts, can reflect the imbalance between neutrophils and lymphocytes in patients with tumors and serves as a representative index of systemic inflammation. Using a complete blood count, the NLR is simple, easily calculated and easy to integrate in daily practice of physicians. This study investigated if serum NLR can be utilized in the differential diagnosis of TB and lung cancer.

Methodology. A retrospective analytical review study design was used to analyze data from the laboratory records and charts of the patients admitted from January 2010 to December 2015 who had a finding on chest X-ray that is suspicious of lung cancer versus TB.

Results. A total of 878 potentially eligible patients and among these, 723 patients were enrolled in this study. Mean neutrophil and NLR values of patients in lung cancer group was significantly lower than TB group (p-value = 0 < 0.05). Mean lymphocyte and mean WBC values of patients diagnosed with lung cancer were significantly greater than those diagnosed with pulmonary TB (p-value = 0 < 0.05). The optimal cut off value of NLR ≥ 3.046 would discriminate patients with TB from lung cancer. Consequently, patients with NLR < 3.046 would diagnose patients with lung cancer.

Conclusion. The results of this study demonstrated that NLR which is an inexpensive, readily available, and easily calculated parameter from a complete blood count can contribute in forming the clinical pre-test probability for either TB or lung cancer.

Keywords: lung cancer, tuberculosis, neutrophil-lymphocyte count ratio

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Original Article

Effectiveness of Mechanical Cough Assist (Insufflator-Exsufflator) among Hospitalized Patients: An Open Label Randomized Control Study at the Lung Center of the Philippines

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ABSTRACT

Objective. Cough reflex is very important to propel secretions. Airway clearance may be impaired in several patients. Interventions for enhancing airway clearance are already available however limited studies are available in determining its benefit and endpoints. Chest Physiotherapy (CPT) is already established as a standard of care for selected pulmonary conditions. However, CPT may not be feasible at all times. With these, mechanical cough assist machine may be an option and studies are yet to develop among other subset of patients, especially those with pulmonary conditions. This study aimed to determine the effectiveness of mechanical cough assist among hospitalized patients.

Methodology. A randomized open-label study. Inclusion criteria: >18 years old admitted either of pneumonia or bronchiectasis in infectious exacerbation and Peak Cough Flow (PCF) rate of ≤270L/min. Exclusion: intubated, COPD in exacerbation, history of bullous emphysema, susceptibility to pneumothorax or pneumo-mediastinum, barotrauma, facial fractures, gastric distention, hypotension, increased intracranial pressure and hemoptysis. 30 patients were enrolled and randomly allocated to CPT or CPT + Mechanical Insufflation-Exufflation (MI-E). PCF rate was measured. CPT was done and MI-E was done three times a day.

Results. Patients given with CPT+MI-E rated the machine in terms of helping in expectoration, convenient and easy to use, well tolerated and satisfaction as effective. The peak cough flow rate and sputum volume in CPT+MI-E is significantly higher than the CPT. No sufficient evidence to say that the difference on the length of hospital stays, intubation and mortality between treatments were significant.

Conclusion. A good cough reflex is important in maintaining the integrity of the airway. In general, the machine was rated as effective in terms of helping in expectoration (increased sputum volume production and improvement in the PCF rate), convenience, tolerance and satisfaction. The peak cough flow rate and sputum volume improved more with the CPT+MI-E. There was no statistical difference in terms of length of hospital stay, intubation and mortality rate between the two groups.

Keywords: mechanical cough assist, cough reflex, chest physiotherapy

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Original Article

A Cohort Study on the Applicability of the Updated 2015 LCP Algorithm on Preoperative Risk Assessment as a Predictor of Postoperative Pulmonary Complications Among Patients at The Lung Center of The Philippines

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ABSTRACT

Objective. Preoperative pulmonary evaluation is an essential prerequisite in every lung resection for it estimates the impact of surgery on the already compromised respiratory function. This study primarily aimed to assess the applicability of the updated Lung Center of the Philippines (LCP) 2015 algorithm on preoperative risk assessment in predicting postoperative pulmonary complications (PPCs) among patients undergoing lung resection. This study also aimed to correlate the baseline demographic variables and the predictive diagnostic factors with PPC development. This updated algorithm could also be more cost-effective with the availability of cardiopulmonary exercise testing (CPET) in our center.

Methodology. This is a cohort observational study that included 78 patients admitted for lung resection and evaluated by the updated 2015 LCP algorithm for preoperative risk assessment. Baseline characteristics and predictive diagnostic factors were recorded. The patients were followed up until discharge to observe for development of PPCs. The incidence of PPCs was determined in relation to the baseline demographic/clinical data, value of predictive factors and the pulmonary risk assessment.

Results. The incidence of PPCs was 29.4% patients with prolonged air leak and nosocomial pneumonia as the most common PPCs while the mortality rate was 1.3%. Among the baseline characteristics, male gender, smoking history and smoking of at least 20 years were significant predictors for PPC development. As for the predictive diagnostic factors, only FEV1 % predicted and ppoFEV1 were correlated to PPC development. There was a longer mean hospital stay (9 days' vs 6. days) for patients with PPCs. The applicability of the 2015 LCP algorithm in predicting PPCs was found to be statistically significant for the non-neoplastic group.

Conclusion. The applicability of the updated 2015 LCP algorithm on preoperative risk assessment in PPCs is not only limited to those patients with lung cancer but also for the non-neoplastic patients. The factors that predict development of PPCs include male gender, smoking history, and smoking of at least 20 years, FEV1% predicted and ppoFEV1 value. The incidence of PPCs is almost the same as with other studies with prolonged air leak and nosocomial pneumonia as the most common PPCs.

Keywords: preoperative risk assessment, postoperative pulmonary complications

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Original Article

Chronic post-surgical pain after Video Assisted Thoracic Surgery (VATS) at the Lung Center of the Philippines

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ABSTRACT

Objective. Thoracic surgeries including video assisted thoracic surgery or VATS are prone to a certain type of chronic post-surgical pain (CPSP) with or without a neuropathic component. VATS has been increasingly used worldwide due to its potential advantages which include less postoperative pain. This study aims to identify the incidence of chronic pain following VATS.

Methodology. This was a prospective cross-sectional study conducted at the Lung Center of the Philippines from October 1, 2015 to March 31, 2016. VATS was done on all patients. Patients were recruited post-operatively and were contacted via telephone to administer the Filipino SigN-PQ questionnaire after 7 days and 3 months. This measured the neuropathic pain of the patients for the two time periods. Primary measures were age, sex, presence of diabetes mellitus or hypertension, history of smoking, diagnosis of underlying thoracic disease, date of surgery, duration of the operation, number of incisions, use of trocars and skin protectors, post-operative pain management, number of draining chest tube, and duration of tube placement.

Results. The incidence of chronic post-surgical pain among adult VATS patients was 21.93%, while breakthrough pain was observed in 57.02% of the patients. Almost all (95%) of the patients were given rescue medications. The patients' pain scores using the Verbal Numerical Rating Scale (VNRS) were obtained every six hours post-surgery. The highest median score was obtained six hours after VATS, and the median score decreased through time until 24 hours post operation. Predictors of chronic-post surgical pain following VATS, include age of > 40 years, BMI > 23, having diabetes mellitus and coronary artery disease as co-morbidities, having primary cancer, and those having three incisions.

Conclusion. Chronic pain after thoracic surgery is a significant problem that affected as much as half of patients. Our study demonstrated that nearly 1 out of 5 patients undergoing VATS might develop CPSP with neuropathic component. Early management of postoperative pain as well as an aggressive treatment is important for the prevention of CPSP. BMI, diabetes mellitus and coronary artery disease are significant factors during the peri-operative period.

Keywords: chronic-post surgical pain, neuropathic pain, video-assisted thoracic surgery, incidence

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Original Article

Outcomes of Multi Drug Resistant Tuberculosis Contacts who received Category I Treatment for Clinically Diagnosed Pulmonary Tuberculosis under DOTS

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ABSTRACT

Objective. Multi Drug Resistant Tuberculosis (MDRTB) is a highly infectious disease that involves resistance to Isoniazid and Rifampicin. Containing the spread of this disease requires close contact investigation and treatment of contacts with TB disease. The objective of this study was to determine the outcome of MDRTB contacts who were recommended Category I Treatment for Clinically Diagnosed Pulmonary Tuberculosis (PTB) under directly observed treatment short course (DOTS).

Methodology. This is a Cross-sectional study involving MDRTB close contacts screened for PTB and diagnosed to have Clinically Diagnosed TB from January 2014 to December 2015. Subjects were followed up through phone call and were asked as to outcome of treatment with Category I anti-TB medication (Completed, lost to follow up, failure). Reason(s) for non-compliance were also asked. Subjects were then asked to come for follow up at the Lung Center OPD wherein a repeat chest X-ray and sputum AFB were done to validate if treatment was successful or not. Final outcomes were grouped according to the interval from completion of treatment and their follow-up. Demographic profiles were obtained and correlated with the outcome of treatment. Chi square test of independence was used to prove correlation of demographic and clinical factors to outcome.

Results. Forty-one (41) MDRTB contacts were considered to be part of the study, however only 31 were contacted. Fourteen refused to participate. From the 17 contacts most were female (65%), between ages 18-30 years (53%), had a normal BMI (47%), had reached high school level of education (42%), were unemployed (65%), lived with less than 8 people in a household (77%) and most did not have any co-morbid disease (76%). Among the subjects, 6 were lost to follow-up during treatment and 11 completed treatments. On their follow up, 58.8% had no TB relapse, hence treatment was considered successful. The p-value of 0.2307 showed no significant difference among the success of outcomes across the 3 treatment groups. Younger age (18-40 years old) showed association with successful outcome among all the other factors evaluated (p-value 0.0397).

Conclusion. Given the limitation of a small sample size, this study showed that treatment with Category I anti-TB medications for Clinically Diagnosed PTB among MDRTB contacts resulted in a successful outcome in majority of subjects. There was no significant difference in success of outcome among the 3 treatment groups. Among the factors evaluated only younger age group showed association with a successful treatment outcome.

Keywords: MDRTB, multi drug resistant tuberculosis, PTB, pulmonary tuberculosis, DOTS, directly observed treatment short course

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Original Article

Pre-operative nutritional assessment in surgical lung resection and occurrence of postoperative pulmonary complication: A Prospective Cohort Study

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ABSTRACT

Objective. Nutritional status is an independent factor that influences the outcome of surgery. The objective of this study was to determine between pre-operative nutritional status and post-operative pulmonary complications among in-patients who underwent elective surgical lung resection.

Methodology. This is a prospective cohort study of 27 Filipino in-patients who underwent elective lung resection. Nutritional status was evaluated using Modified Subjective Global Assessment. Post-operative pulmonary complications and length of hospital stay were analyzed.

Results. Demographics of 27 participant showed that mean age was 45.26 ± 16.83 years old, male-dominated. Majority had moderate nutritional risk (n = 20), 6 classified high risk and 1 low risk. The incidence of PPC was 3 out of 27 with only 1 mortality. There was no sufficient evidence to associate nutritional status to pulmonary complications (p-values > 0.05). Patients at low risk stayed in the hospital for 18 days, 20 under moderate risk had mean length of stay of 18.55 ± 8.678 days and 6 under high risk stayed for 14.5 ± 5.01 days. There was no statistical proof of significance in between category difference of length of stay per nutritional group (p-values > 0.05).

Conclusion. Nutritional risk status, whether low, moderate or high, was not proven to be associated with occurrence of post-operative pulmonary complication and in-hospital stay. There is a need to increase the sample size in order to establish a pattern that will link poor nutritional status to pulmonary complications and in-hospital stay.

Keywords: modified subjective global assessment, post-operative pulmonary complication

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Original Article

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

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ABSTRACT

Objective. 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 Outpatient Department of the Lung Center of the Philippines.

Methodology. A cross sectional study design was used. A total of 80 Filipino asthmatic patients seen at the OPD 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 FEV1 were gathered. Eosinophilic phenotype was defined as > 300 cells/mm^3 per blood sample or ≥ 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 value < 0.01) and the dose of steroid use (p value = 0.09) were statistically different between controlled and uncontrolled asthmatic patients. There was no statistical significance of the level of asthma control between eosinophilic vs non-eosinophilic phenotypes.

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

Keywords: bronchial asthma, eosinophilic phenotype, peripheral blood eosinophilia, sputum eosinophilia

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Original Article

Validity of Pleural Fluid Cholesterol in Differentiating Exudative from Transudative Pleural Effusions

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ABSTRACT

Objective. Pleural effusion is one of the most common diagnoses in pulmonary medicine. According to most algorithms, distinguishing between exudative and transudative effusions is the first step in its management. Light's criteria have long been the method used for such. This study aimed to compare Light's criteria with pleural fluid cholesterol and its ratio with serum cholesterol in separating exudative from transudative pleural effusions and to possibly introduce an easier, more cost-effective method than Light's criteria.

Methodology. A cross sectional, analytical study design was used. A total of 63 patients with pleural effusion were included in the study. After pleural effusion was drained from each patient, pleural fluid and blood were submitted to the laboratory for protein, lactate dehydrogenase (LDH), and cholesterol. The pleural effusion is labeled exudative according to Light's criteria (at least one of the following: effusion protein/serum protein ratio greater than 0.5; effusion LDH/serum LDH ratio greater than 0.6; effusion LDH level greater than two-thirds the upper limit of the laboratory's reference range of serum LDH), and pleural fluid cholesterol > 45 mg/dL (1.2 mmol/L) or a pleural fluid cholesterol/serum cholesterol ratio ≥ 0.4. Other procedures, such as cultures and histopathologic studies, were requested as indicated and in accordance with the standard of care.

Results. Based on diagnosis, most patients had pulmonary tuberculosis (44.4%), followed by bronchogenic carcinoma (27%). The resulting sensitivity indicates that the probability that pleural fluid cholesterol and pleural fluid/serum (P/S) cholesterol ratio result is exudative when the Light's criteria result is exudative is 96.49%. On the other hand, the resulting specificity, the probability that the pleural fluid cholesterol results to transudate when the Light's criteria is transudate, is 100%. The sensitivity and specificity indicated that pleural fluid cholesterol and P/S cholesterol ratio can significantly predict the result of Light's criteria. Light's criteria, pleural fluid cholesterol, and P/S cholesterol ratio all misclassified a small percentage of exudative pleural effusions as transudates. The difference in accuracy of the parameters, however, was not statistically significant.

Conclusion. After recognizing the limitation of a population with purely exudative pleural effusions, pleural fluid cholesterol levels and its ratio with serum cholesterol can significantly aid the diagnosis of pleural exudates since they can accurately predict the results of Light's criteria.

Keywords: pleural effusion, cholesterol, Light's criteria

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Original Article

Validity study of Gene Xpert MTB/Rif Assay in the diagnosis of tuberculous pleural effusion among adult patients at the Lung Center of the Philippines

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ABSTRACT

Objective. Tuberculous pleural effusion can be difficult to diagnose and existing tests to confirm the disease are limited in accuracy, time to diagnosis and requires costly invasive procedures. The objective of this study was to determine the accuracy of Gene Xpert MTB/Rif Assays in the diagnosis of tuberculous pleural effusion among adult patients at the Lung Center of the Philippines.

Methodology. This was a cross sectional analytical study among 60 patients with unilateral pleural effusion seen at the Lung Center of the Philippines from October 2014 to September 2016. Thoracentesis, closed tube thoracostomy or VATS with pleural biopsy was done. The specimens were sent for histology, MTB culture, and Gene Xpert. Results were collected for data analyses.

Results. Of 60 participants, 26 (43.3%) had definite tuberculous pleural effusion. The diagnostic accuracy of this test was compared to MTB Culture, Histology and Composite Reference Standard. Gene Xpert in relation to MTB culture showed sensitivity and specificity of 100% and 94.34% respectively, in relation to histopathology, the sensitivity was 14.29% and the specificity was 82.05% and in relation to the composite reference standard, the sensitivity was 30.77% and the specificity was 94.12%.

Conclusion. The Gene Xpert MTB/RIF assay has poor sensitivity; thus, it is not a good routine diagnostic tool for the diagnosis of tuberculous pleural effusion even in high burden settings such as our country. On the other hand, with its high specificity, it can forestall further invasive procedures in some patients with tuberculous pleural effusion.

Keywords: tuberculous pleural effusion, Gene Xpert MTB/Rif Assay

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Original Article

Risk Factors for Development of Secondary Spontaneous Pneumothorax in Patients with Pulmonary Tuberculosis Admitted to the Lung Center of the Philippines: A 10-year Experience

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ABSTRACT

Objective. Tuberculosis (TB) remains one of the world's deadliest communicable diseases and remains an important cause of secondary spontaneous pneumothorax (SSP) especially in the developing world. Although a rare but well-recognized complication, spontaneous pneumothorax complicating PTB is scantily reported in the literature. For this reason, our study aimed identifying frequency of presentation and variables that will predispose PTB patients in developing secondary spontaneous pneumothorax.

Methodology. A Retrospective Cohort Study analyzing data corresponding to the medical records of all patients with SSP and TB admitted and treated in our hospital between January 1, 2004 to December 31, 2013. The following data were collected: demographic (age, gender, BMI, Social Service classification), history of smoking, co morbid illness (COPD, bronchial asthma, pneumonia, diabetes and bronchiectasis), radiographic presentation (atelectasis, cavitation, bronchiectasis, consolidation, destroyed lung, effusion and pleural thickening), and treatment course of anti-TB medications.

Results. Mean age was 44 ± 16 years old. Average BMI value was 19.26 ± 3.94 while smoking history in pack years had an average of 13.92 ± 19.73. The study showed predominantly male, 68.9% versus 31.1%. Majority of the patients had a normal BMI (52.2%). Underweight cases were 161 patients, comprising 31.7% of the patients, while the remaining 16.1% were overweight. Incidence of SSP were significantly associated with middle aged patients, males, underweight and who were in service classification, while there was no proven relationship between current smoking status and SSP.

Conclusion. Out of the 508 patients in this study, 14.4% developed secondary spontaneous pneumothorax. There were higher incidences of SSP among patients in the middle-aged group, males, underweight and patients availing of service classification upon admission. Pneumonia as a co-morbid illness and CXR findings of reticular infiltrates were significantly related to the development of SSP in this study.

Keywords: tuberculosis, pulmonary tuberculosis, secondary spontaneous pneumothorax, risk factors

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Original Article

EZ Blocker® (Y-Shaped Endobronchial Blocker for Lung Isolation): The New Kid on the Block

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ABSTRACT

Background. The EZ Blocker® is a new Y-shaped endobronchial blocker intended for lung isolation for thoracic surgical procedures that can be an alternative to the double lumen tubes and single tip bronchial blockers that are more commonly used for lung isolation. The study reviewed the patients' profile, anesthesia placement technique, complications and safety issues of the EZ Blocker® as lung isolation device for thoracic surgical procedures based on the initial clinical experience of anesthesiologists at the Lung Center of the Philippines (LCP) from December 2014 to August 2015.

Methodology. All charts of the patients from December 2014 to August 2015 (9 months) who underwent thoracic surgical procedures at the LCP wherein the EZ Blocker® was used as the lung isolation device were all retrieved, documented, and reviewed. The demographic profile, the technique and manner how the EZ Blocker® were employed and positioned, complications, and conversion from minimally to open surgical procedures were noted.

Results. EZ Blocker® was used in 60 patients, ASA 1 to 3, ages 8 to 78 years old, with mean age of 46.38 (± 18.59), in 43 (71.67%) males, and in 17 (28.33%) females. EZ Blocker® was mostly used in patients with pleural effusion (43.33%), anterior mediastinal mass (13.33%), and bronchogenic cancer (6.67%) respectively. EZ Blocker® was used in simple Video Assisted Thoracoscopic Surgery (47.54%), Video Assisted Thoracic Surgery (32.79%) and Open Thoracic Surgical (19.67%) procedures. Placement of the device were via fiberoptic bronchoscopy in 53 cases (88.33%) and 7 cases (11.67%) were not. Three (3) complications were noted (hypoxemia, spillage, and hypoxemia) but these were immediately and appropriately managed. Two out of 50 Video Assisted Thoracic Surgeries were converted to open procedure but not due to EZ Blocker®.

Conclusion. EZ Blocker® is an effective and safe lung isolation device that can be used for various thoracic surgical procedures ranging from simple to complex procedures in both open and minimally invasive thoracic surgical procedures.

Keywords: EZ blocker, bronchial blocker, lung isolation, thoracic surgery

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Acinetobacter Nosocomial Pneumonia: Risk Factors, Resistance Pattern and Clinical Outcome

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ABSTRACT

Objective. This study aimed to determine the prevalence of Acinetobacter nosocomial pneumonia from other pathogens at a tertiary hospital; to identify the risk factors for the development of Acinetobacter nosocomial pneumonia; to determine the antibiotic susceptibility patterns of Acinetobacter isolates from the clinical specimen of these patients; and to determine the clinical outcomes of patients with Acinetobacter nosocomial pneumonia.

Methodology. All results of sputum, tracheal aspirate, bronchial wash, and pleural fluid and blood examinations were retrieved from the laboratory. Charts of patients with diagnosis of nosocomial pneumonia were reviewed. Data with Acinetobacter isolates were analyzed according to the following: age, gender, cigarette smoking history, length of hospital stay, co-morbidities, hospital procedure, history of antibiotic and steroid use complications, outcome and resistance pattern of antibiotic.

Results. Important clinical characteristics and risk factors of patients were the following: pulmonary tuberculosis (45.24%), smoking history (60%), previous antibiotic used (100%), mechanical ventilator (78.09%), and sepsis (95.71%). Most of the patients died (50.48%) but there was no significant difference from patients who survived. There was an increasing trend of incidence of Acinetobacter from 2009 (14.74%) to 2012 (39.69%) compared with other common gram-negative organisms.

Conclusion. The most common group affected by Acinetobacter was 71 to 80 years old. The predominance of male; length of hospital stays; pulmonary disease; co-morbidities such as hypertension; cigarette smoking history; previous antibiotic and steroid used; and procedures done in the patients such as intubation and enteral feeding, were the important risk factors associated with these patients. Majority of patients had sepsis and did not survive.

Keywords: Acinetobacter nosocomial pneumonia, risk factors, rate of resistance

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Ultrasound Guidance for the Placement of a Left Sided Double Lumen Tube in Patients for Thoracic Surgery

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ABSTRACT

Objectives. Recently, ultrasonography (UTZ) has been gaining a place in airway management. The objective of this prospective study is to determine the positivity of ultrasound guidance in the proper placement of a left-sided double lumen tube (LDLT) in patients for thoracic surgery and to confirm placement with Fiberoptic bronchoscopy (FOB).

Methodology. Thirty (30) patients for elective thoracic surgery, were enrolled. All subjects were intubated by direct laryngoscopy with a LDLT under transtracheal UTZ guidance. The LDLT position was adjusted until satisfactory finding of Lung sliding sign (LS): lung sliding sign on both lung fields and lung pulse (LP) sign on both upper lobes of the lungs after clamping of the tracheal and /or bronchial lumen of the LDLT. FOB was performed to confirm tube placement. Patients placed on the lateral decubitus position (LDP) were likewise subjected to same procedure.

Results. The frequency of correct and incorrect LDLT placement using UTZ was similar on the supine position and LDP. Positive predictive values (PPV) of 83% and 81% on the supine and LDP were noted, respectively.

Conclusion. UTZ guidance can be an alternative method to check proper LDLT placement with a positive predictive value of 82%.

Keywords: ultrasound, ultrasound guidance, left sided double lumen tube, double lumen tube placement, thoracic surgery

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Scientific Proceedings

Original Article

CoDe OR: Cause of Delay in the Operating Room: A Prospective Observational Study on the Incidence and Causes of Operating Room Delays at the Lung Center of the Philippines

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ABSTRACT

Objective. Health care expenditure is a serious concern nowadays. The rising costs, demand, and competitions from other hospitals are reasons to improve the quality of care and service a hospital can offer. However, since there is a limited resource in hospitals, treatment capacities and income-generation are also limited. One income-generating area in the hospital is the Operating Room (OR). Delays in starting surgical procedures pose an adverse effect not only to the patient but to the operating room and hospital as well. In this study, the researchers analyzed the cause of perioperative delays at the Lung Center of the Philippines.

Methodology. The researchers recorded perioperative delays and analyzed its prevalence on elective surgical cases done on randomly selected weekdays from May to July 2014. A total of 230 delayed cases were included in this study and more than half of which occurred under thoracic surgical cases (55.6%). Most causes of delay were doctor-related (42.22% surgeons - late arrival, 37.04% anesthesiologist - late arrival and preop patient preparation), followed by Operating Room-related (12.59%, mostly equipment preparation), ward-related (7.82%, majority of which were staffing problems), and patient-related (1.73%, blood unavailability, clearances). During the study period, most of the delays occurred in first case start-up times (93% of 207 first cases) and were due to multifactorial reason. Cost analysis showed that hour delays can cost Php 496.43 per hour per case. During the 3-month study period, the total delay duration (actual cutting time from the scheduled time) of first cases alone was 12,878 minutes, which translates to approximately hospital loss of PhP 106,550.426. This is an underestimate because this did not account for delays other than the first cases, and the psychological costs to patients, patient's family, and staff.

Conclusion. Perioperative delays are frequent at the Lung Center of the Philippines. It has an effect not only to the patient but also reflects the efficiency of the operating room and resource utilization of the hospital. This research had documented perioperative delays and may provide a basis for developing strategies to improve operating room efficiency.

Keywords: operating room efficiency, first case start, operating room delay, operating room turnaround time, first case delay

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Original Article

Hypoxia Inhalation Test and Predictive Equations: Predicting the need of Oxygen Supplementation among Filipino Patients with Chronic Obstructive Pulmonary Disease

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ABSTRACT

Objective. Screening guidelines, predictive equations and hypoxia inhalation test (HIT) were recommended for those at risk of developing complications prior to air travel. Particularly for HIT being the most widely available test, further research is needed to determine more precisely its value in assessing patients with chronic obstructive pulmonary disease (COPD) before air travel. This study aimed to determine the incidence of hypoxia among COPD patients during hypoxic inhalation test.

Methodology. Thirty (30) patients with COPD were analyzed. Spirometry was obtained. A 12-lead electrocardiogram was done prior to HIT. Blood gases were analyzed and if arterial oxygen pressure (paO_2) was 55-69 mmHg, subjects will undergo HIT. Blood gases were determined after hypoxia inhalation and when oxygen saturations (SpO_2) < 90%. SpO_2 were monitored and recorded before, during and after hypoxia inhalation test. HIT was performed using the Venturi mask method. The estimated arterial oxygen pressure (paO_2) (altitude) was calculated using the predictive equation presented by the British Thoracic Society. Subjects were closely monitored during HIT. All events were recorded. Actual paO_2 during HIT was compared with the predictive equations using the McNemar's Test for Homogeneity.

Results. Estimated paO_2 using the predictive equations were compared with actual paO_2 during HIT. Twenty four of the 30 subjects included in this study had a fall in paO_2 during HIT. Fourteen subjects were given supplemental oxygen. The mean time of desaturation was 7.2 minutes ± 5.1. The mean paO_2 during HIT was 54.47 ± 4.8 mmHg compared with a baseline mean of 66.7 ± 2.9 mmHg. The mean time needed to correct hypoxemia was 1.9 ± 0.9 minutes. The mean supplemental oxygen (liters/minute) needed to correct hypoxemia was 1.4 ± 0.7. Two subjects complained of dizziness and chest tightness, five subjects mentioned sleepiness, and two subjects were admitted one week after the HIT.

Conclusion. The four predictive equations overestimate the need for supplemental oxygen during air travel. A high incidence of severe hypoxemia occurs in severe and very severe COPD. There was rapid reversal of the symptoms upon giving supplemental oxygenation though majority of the patients remained asymptomatic. Baseline paO_2 proves to have the highest correlation with actual paO_2 during HIT.

Keywords: hypoxia inhalation test, COPD, pre-flight, assessment, oxygen

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  Murray, PR, Rosenthal KS, Kobayashi GS, Pfaller MA. Medical microbiology. 4th ed. St. Louis: Mosby; 2002.

  Gilstrap LC 3rd, Cunningham FG, VanDorsten JP, editors. Operative obstetrics. 2nd ed. New York: McGraw-Hill; 2002.

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  World Health Organization. Hospital infection control guidelines for severe acute respiratory syndrome. April 16, 2003: http://who.int/csr/sars/infectioncontrol/en (accessed April 24, 2003).

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Mission

We provide high quality health services and state of the art facilities for the diagnosis and management of respiratory and chest diseases, and promotion of lung health for the Filipino people with excellence and compassion, regardless of creed, color, sex, socio-economic status, and political affiliation.

Core Values

Customer-focused
Commitment
Compassion
Creativity
Collaboration

Shared Values

Concern and care for patients, employees and the institution
Responsibility and discipline
Commitment and dedication to excellence
Respect for individual worth
Integrity and honesty
Unity and teamwork
Creativity and innovativeness

LCP OPD Programs

The Lung Center of the Philippines Emergency Medicine and Out Patient Department is proud to present our new programs and services.

1. **LCP Post-COVID Care Program** – Although most people with COVID get better within weeks of illness, some people experience post-COVID Syndrome, a wide range of new, returning, or ongoing health problems people can experience four or more weeks after first being infected with the virus. These conditions can present as different types and combinations of health problems for different lengths of time. The LCP, being a referral center for moderate to critically ill COVID-19 patients and frequently encountering cases of Post-COVID syndrome, embarked on a project that not only monitors patients' symptoms, pulmonary function and radiologic abnormalities, but also provides individualized evaluation and post-COVID pulmonary rehabilitation.

2. **Smoking Cessation Clinic** – This service has already been in existence for just as long as the LCP Smoking Cessation Program has been in existence, serving to provide one-on-one face-to-face counselling for smokers. During the pandemic, this service was temporarily stopped and the Center's smoking cessation advocacy was largely limited to the existing DOH LCP Quitline. As the number of COVID-19 cases has gone down, and because the availability of Nicotine Replacement therapy requires physician evaluation and prescription, the Smoking cessation clinic has reopened at the new OPD complex and is now ready to serve clients who are ready to quit.

3. **Screening for Early Lung Cancer Detection and Treatment (SELCaDT) Clinic** – The LCP has launched this service as one of our advocacies to promote early diagnosis of lung cancers to improve survival rates from lung cancer, the leading cause of cancer deaths in the Philippines. The availability of the low dose CT scan at a more affordable rate has made this service accessible to everyone at risk for lung cancer: those with first degree relatives with lung cancer, and those with significant smoking history who are > 50 to 70 years of age.

4. **ACES (Asthma and COPD Education Service)** – Education of patients with obstructive airways with intent of improving patient knowledge, attitudes and skills on inhaler devices is a necessary service to strengthen our patient education services for asthma and COPD, and augment existing programs like the LCP Asthma Club and LCP COPD Support Group.

5. **Nutrition Clinic** – The Nutrition Clinic, located at the OPD complex, is a place where the patients from the outpatient department, especially those who are nutritionally at risk, are assessed by a Clinical Registered Nutritionist-Dietitian on duty. Based on the assessment, they will then be given an Individualized Diet Specific for their Diagnosis, Anthropometric Measurements, Biochemical Data, and their Present Dietary Intake. The Nutrition Clinic aims to address the needs of patients with Chronic Respiratory Conditions such as: Asthma, Lung Cancer, Tuberculosis, and Post-COVID Syndrome (considering LCP is a COVID-19 Referral Center), as often their nutritional status are neglected and not given due attention. We aim to support all patients in their recovery through a carefully planned, and research-based diet recommendations to achieve optimal nutrition, therefore improving quality of life.

For more information, please call 8924-6101 local 1324 or 1158.

LCP
Revitalize.
Arise.
Revolutionize.
Stronger
After
Year
40

Lung Center of the Philippines 40th Founding Anniversary Celebration

Schedule of Activities

January 2022

Pre Anniversary Week Activities

Date	Activity	Details
Jan 5 | Wednesday | 8:30 AM	Ceremonial Release of Balloons, Formational and Aerial Pictorial Pre-opening Program of LCP 40th Founding Anniversary Celebration	LCP grounds / façade Launching of LCP Anniversary Community "Forty-Pantry" services (X-ray, Sputum exam, RT-PCR test, Low Dose CT for eligible population, Post-COVID rehabilitation consult, Smoking cessation counselling)
Jan 6-7 | Thursday-Friday 9:00 - 4:00 PM	Awardees and Committee pictorial	LCP Garden
Jan 10 | Monday | 10:00 AM	Launching of Severe Asthma Clinic Talk on Severe Asthma	Hybrid Lecture
Jan 12 | Wednesday | 10:00 AM	Lay Fora on TB plus COVID	Hybrid Lecture
Jan 14 | Friday | 10:00 AM	Mini-Talk on Research Ethics	Hybrid Lecture

Main Celebration Week

Date	Activity	Details
Jan 17 | Monday | 8:00 AM	Thanksgiving Mass and Celebration Parade	Mass at the Lobby Parade at LCP grounds "Best LCP Phoenix" costume contest
9:30 AM	Opening Ceremonies Program	Hybrid (Face to Face and Virtual) LCP lobby, EMG and LCP grounds Guest Speaker Launch of: LCP Promotional AVP version 2 Commemorative MerchShop Digital Commemorative Souvenir Program Recognition of LCP Donors
3:30 PM	Employees Engagement Activities: Ikebana: Floral Art for Mental Health	Hybrid Talk AVR
Jan 18 | Tuesday | 10:00 AM	Talk Streams: Rebooting One's Soul for the Spirit of Unity	Hybrid Talk EMG Auditorium
3:30 PM	Employees Engagement Activities: GS Jeopardy Game	AVR
Jan 19 | Wednesday | 10:00 AM	Talk Streams: Emphasizing the Power of Behavior as Building Block of Change	Hybrid Talk EMG Auditorium
3:30 PM	Employees Engagement Activities: Music, Mug, Mat and Ice-cream at the "park"	LCP façade
Jan 20 | Thursday | 10:00 AM	Talk Streams: Becoming a Micro Influencer in your Niche Field	Hybrid Talk AVR
3:30 PM	Employees Engagement Activities: LCP Festival of Short Films in the theme of Good Governance Practice	Film showing at the lobby Best Governance Actor / Actress Best Picture / Video Editing
Jan 21 | Friday | 1:30 PM	40th Anniversary Celebration Closing Ceremonies and Recognition Rites	Hybrid (Face to Face and Virtual) EMG Auditorium and Lobby Incentives and Awards for Employees Guest Speaker Entertainment Raffle Bonanza
6:00 PM	Thanksgiving Dinner	OPD Garden Management, Heads, Committee Members

Post Anniversary Week Activity Segue

Date	Activity	Details
Jan 27 | Thursday	Post Graduate Course	LCPPA CME Activity
Jan 28 | Friday	Post Graduate Course	LCPPA CME Activity
Jan 29 | Saturday	Post Graduate Course	LCPPA CME Activity

Planning and Conceptualization:
LCP 40th Anniversary Committee
Dr. Treah May Sayo
Overall Chairperson