Inflammatory biomarkers and prediction for intensive care unit admission in severe community-acquired pneumonia*
Ramírez, Paula MD; Ferrer, Miquel MD, PhD; Martí, Verónica MD; Reyes, Soledad MD; Martínez, Raquel MD; Menéndez, Rosario MD; Ewig, Santiago MD; Torres, Antoni MD
Critical Care Medicine:

Ramírez et al address an important question posed to critical care physicians in this study – “is there a good way to predict which community acquired pneumonia patients require the ICU and which will do fine on the regular wards?” Obviously, those patients requiring mechanical ventilation and those with septic shock require ICU care, and this prospective clinical study does not address these patients. This study looks at those other patients – those diagnosed with CAP in the ED without recent hospital admissions, neutropenia, immunosuppression or steroid use. The group hypothesized that increased systemic inflammation measured through the use of serum biomarkers may help in identifying patients who will require ICU admission. They looked at multiple biomarkers (CRP, procalcitonin, TNF alpha, and IL6) drawn once within 24 hrs of admission as well as the minor criteria for severe community acquired pneumonia as set forth by the IDSA/ATS guidelines. Per IDSA/ATS guidelines 3 of 9 minor criteria at admission is defined as severe CAP. The major and minor criteria as set forth by IDSA/ATS are:

Criteria for severe community-acquired pneumonia.
Minor criteria:
- Respiratory rate >30 breaths/min
- PaO2/FiO2 ratiob <250
- Multilobar infiltrates
- Confusion/disorientation
- Uremia (BUN level, >20 mg/dL)
- Leukopenia (WBC count, <4000 cells/mm3)
- Thrombocytopenia (platelet count, <100,000 cells/mm3)
- Hypothermia (core temperature, <36_C)
- Hypotension requiring aggressive fluid resuscitation

Major criteria:
- Invasive mechanical ventilation
  • Septic shock with the need for vasopressor

IDSA/ATS Guidelines for CAP in Adults • CID 2007:44 (Suppl 2) • S27

The study looked at 627 ward patients and 58 ICU patients – 36 directly admitted to ICU and 22 with delayed ICU admission. They found that none of the biomarkers were more accurate at predicting ICU admission than the minor criteria of the IDSA/ATS guidelines. Both CRP and procalcitonin were significantly higher in those patients in the ICU, but did not improve the overall prediction for ICU admission. Evaluating just the minor criteria, the study found that multilobar


The October Issue of Critical care Medicine was reviewed by Kendra Hammond.
involvement, PaO2/FiO2, respiratory rate, hypotension, and leucopenia were significantly more frequent in patients with delayed ICU admission as compared to those who stayed on the ward. The biomarkers, however, were not completely useless. In patients with severe CAP defined by presence of minor criteria, but with low levels of procalcitonin and IL-6, management on the wards may be safe. The converse, however, was not true in that elevated procalcitonin and IL-6 did not discriminate between those safely managed on the floor and those that required ICU.

In general, this study was interesting despite not being able to provide much added clarity to the question of which patients with CAP should come to the ICU and which can be managed on the floors. Despite the finding with regards to procalcitonin, I think I would still use the IDSA/ATS guidelines to guide my management until further, more conclusive data is obtained.

Reducing ventilator-associated pneumonia in intensive care: Impact of implementing a care bundle*

Morris, Andrew Conway MB, ChB, MRCP; Hay, Alasdair W. FRCA; Swann, David G. FRCA; Everingham, Kirsty BN; McCulloch, Corrienne BN; McNulty, Jane BN; Brooks, Odette BN; Laurenson, Ian F. FRCPath; Cook, Brian FRCA; Walsh, Timothy S. FRCA


Morris et al performed a before and after study in their 18 bed mixed medical-surgical ICU looking at the effects of a systematic implementation of a VAP prevention bundle. This group and ICU had participated in prior VAP studies but had not achieved significant declines in VAP rates during those trials. Their endpoints in this study included VAP rates as well as effects on antibiotics usage, length of ICU stay, and ICU mortality. They looked at patients who were mechanically ventilated for at least 48 hrs. In the pre-bundle time period they looked at 1460 patients and the post-bundle group included 501 patients. The VAP bundle implemented was four-fold:

1.) Head up position (head of bed > 30 degrees)
2.) Chlorhexidine mouth care
3.) Daily sedation hold
4.) Daily trial of ventilator weaning in suitable patients

Goal compliance was 95%, which was achieved for the head of the bed and chlorhexidine, however, the wake and wean components had a documented compliance of only 70%. Despite the suboptimal compliance, the group was able to demonstrate a significant decline in the incident density of VAP (defined both by clinical and microbiological markers) from 32 cases per 1000 ventilator days to 12 cases per 1000 ventilator days. This decline was noted to be greater in those patients on mechanical ventilation for greater than 6 days and even more so in those ventilated there was a significant decrease in the use of antibiotics in the >6 day and >14 days on the ventilator groups. Also of note is the fact that MRSA acquisition declined from 10% to 3.6% after the VAP bundle implementation.

This study demonstrates a
relatively simple approach to improving rates of VAP. The fact that this group and ICU had previously taken part in studies and were well aware of VAP prevention strategies, yet still had significant improvements adds strength to this study. It supports the use of protocol driven bundles in VAP prevention and suggests that the results are likely not just due to increased awareness of staff. The interventions performed in this study are straightforward to implement and not especially costly (mention of possible integration of subglottic suctioning with specialized ETT was mentioned as being part of the protocol but was not included due to cost reasons). This article contributes additional support to the bundle approach in VAP and, if I were practicing in a hospital that did not utilize such bundles, I strongly encourage their implementation.

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*Surgical Management and Outcomes of Elderly Patients with Early Stage Non-small Cell Lung Cancer; A Nested Case-Control Study*

*Chest 2011; 140(4): 874-880*

The number of elderly patients diagnosed with non-small cell lung cancer is going to increase over the next several years due to the fact that people, on average, are living longer. This study used a French CV surgery database (named Epithor) to examine the surgical treatment, morbidity and mortality of patients age 70 or over who had stage I or II non-small cell lung cancer. This cohort was compared with the same number of younger patients (<70 years old) matched for gender, ASA score (1 and 2, >3) performance status (0 and 1, >2) and FEV1 (>60% or <60%). They also compared types of surgical procedure, hospital length of stay, number of complications, morbidity and mortality (30-, 60- and 90-day). They found that the difference between the mean hospital length of stay was one day longer in the older group than the younger group (13 vs 12.3 days respectively, with a p = 0.02). There was no difference between the type of surgical procedures (p = 0.08) with most patients in both groups receiving a lobectomy. Younger patients received more radical lymph node dissection and older patients received more lymph node sampling. No difference in the number of or type of complications between the two groups. In terms of mortality, patients >70 years old had a higher 30-d, 60-d and 90-d post-op mortality when compared to the group of patients younger than 70. This study was limited by the fact that there was no data on hospital disposition (nursing home, rehab, LTAC, etc), no data on perioperative treatment, and no data on post-op quality of life.

Bottom Line: Age should not prevent curative surgery for stage I or II NSCLC though this study found that 30-, 60- and 90-day mortality was higher in the group of patients age 70 or over.
Bronchodilator Reversibility in COPD

Hanania N, Celli B, Donohue J, Martin U

The authors of this paper have big issues with using “bronchodilator reversibility” to distinguish asthma from COPD and in fact, have even bigger issues with the bronchodilator test to begin with. First, they note that the definition of airflow limitation (FEV1/FVC <0.7) has never been clinically validated and may result in overdiagnosis of COPD in older patients and underdiagnosis in younger patients. Regarding bronchodilator reversibility, there is no consensus regarding the specific bronchodilator medication, dose or method of administration used during the test. One study which looked at reversibility in COPD patients found a marked difference in reversibility based on the type of bronchodilator: 11% showed reversibility with atrovent, 27% with albuterol whereas 35% demonstrated reversibility with combivent. Also, the definition of bronchodilator reversibility is not universal throughout the guidelines. The ATS guidelines defines reversibility as both >12% and >200cc increase from baseline FEV1 where the ERS defines it as >10% increase in percentage predicted FEV1. This lack of standard criterion makes it difficult to interpret and compare results of acute reversibility across studies. Now, COPD is defined as airflow limitation that is not full reversible. However evidence now suggests that a significant number of COPD patients demonstrate significant bronchodilator reversibility. One study published in 1999 in Chest showed that of 411 patients with COPD and no history of asthma, 65% showed reversibility following bronchodilator based on ATS criteria. They also remind us that there is considerable variation in bronchodilator response over time in the same individual and that bronchodilator reversibility decreases as the severity of COPD increases. Also, a study in 2006 in the AJRCCM found that normal, healthy subjects demonstrate bronchodilator reversibility and they have a decrease in responsiveness as they get older. One more misconception that the authors would like to point out is that just because a patient does not demonstrate reversibility on spirometry does NOT mean they won’t benefit from long term treatment with bronchodilators though bronchodilator responders do have more improvement in lung function than nonresponders. They also recommend including FVC and inspiratory capacity in the assessment of bronchodilator reversibility as improvements in FVC and IC usually correlates with improvements in exercise tolerance, endurance and in dyspnea.

Bottom Line(s):
1. Don’t use bronchodilator reversibility to distinguish between COPD and asthma as a high percentage of COPD patients demonstrate reversibility following bronchodilator
2. A standardized method is needed to diagnose bronchodilator reversibility (same drug, same dose, same method of delivery and same criteria for diagnosis) across the societies

“bronchodilator reversibility should not be used to distinguish between COPD and Asthma”
Diagnosing pulmonary embolism (PE) is difficult and tends to lead to a high frequency of unnecessary and expensive diagnostic procedures. Physicians will use either an empirical assessment (gestalt) or a standardized clinical decision rule, such as the Wells, Geneva, Pisa, Charlotte, and Pulmonary Embolism Rule-out Criteria (PERC) rules. Adding a D-dimer test (either a quantitative or qualitative test at the point of care) is done if clinical probability is low.

The authors performed a systematic search to identify those studies that used gestalt or decision rule to assess for PE. They used studies that included more than 50 patients with confirmed PE to ensure minimal level of accuracy. Also, D-dimer testing had to have been done on the low-probability patients to be included. A total of 52 studies were included with mean age of 45 to 72 years. When sensitivity data was pooled, the Revised Geneva rules had the highest sensitivity of 0.91 (95% CI 0.73-0.98) while the Wells with cutoff of < 4 (Wells4) had the lowest at 0.60 (95% CI 0.49-0.69). When specificity date was pooled, the Wells with cutoff of < 2 (Wells2) had the highest specificity 0.85 (95% CI 0.80-0.89) and Geneva had the lowest at 0.50 (95% CI 0.29-0.72). Of note, these results are influenced by the overall prevalence of PE in the specific study, so if PE was more prevalent this resulted in a higher sensitivity and lower specificity. Adjusted for a virtual population with prevalence of 15% lowered the overall sensitivity of the Revised Geneva rules to 0.82 and resulted in the Wells2 to have a better sensitivity at 0.85. The Wells4 had an increased specificity to 0.80, which was about the same. When D-dimer testing was combined with the rules, the authors examined failure rates (defined as proportion of patients with confirmed VTE at follow-up divided by total number of patients with negative rule and d-dimer testing or missed cases) and efficiency (expressed as the number of patients who receive negative result on d-dimer testing and diagnostic strategy divided by all included patients). Those studies that used qualitative D-dimer testing had a higher failure rate than those using quantitative D-dimer testing (1%, CI 0.8-1.3 vs 0.4%, CI 0.2-0.7). Combining the qualitative test with gestalt had surprisingly high efficiency of 52%, CI 40-64 and lower failure rate of 0.7%, CI 0.4-1.2. Combining quantitative D-dimer testing with Wells4 decreased the failure rate to 0.5%.

In conclusion, none of the individual strategies used had a high enough sensitivity to exclude PE on its own. The specificities are even lower resulting in more false-positive results and unnecessary CT. However, a strategy using both quantitative D-dimer testing in combination with either gestalt, Wells2/4 and Geneva Rules seemed safe. However, if qualitative D-dimer testing was used, the more sensitive Wells2 and gestalt were safer. Keeping in mind the effects of prevalence of PE on sensitivity and specificity, the authors recommend that in a population with low prevalence such as in the emergency department a rule with high sensitivity such as the Wells2 or Geneva in combination with a less-sensitive qualitative (point-of-
care) D-dimer test be used. In a selected population with a high prevalence of PE (like our patients in the hospital) where the specificity is lowered and more false-positives ensue, they recommend employing a rule with more specificity such as the Wells4 in combination with a high-sensitivity quantitative D-dimer test.

**Referral to an Extracorporeal Membrane Oxygenation Center and Mortality Among Patients With Severe 2009 Influenza A(H1N1)**

*JAMA Oct 2011 306(15): 1659-1666*

Noah MA, Peek GJ, et al.

Extracorporeal membrane oxygenation (ECMO) and its role in patients with severe ARDS has remained controversial as it remains unclear if it affects outcome and it leads to doubled hospital costs compared to conventional care. A case series out of Australia and New Zealand in 2009 found that in those with severe ARDS from H1N1, more than 70% who received ECMO survived. The authors used data obtained from the Swine Flu Triage Study (SwiFT) from Sep 2009 to Jan 2010, a prospective cohort study of patients with suspected or confirmed H1N1 and compared patients referred to UK ECMO centers matched to non-ECMO referred patients. Groups were matched using 3 different statistical approaches, the most interesting of which is the GenMatch algorithm, which basically seeks to make the groups as similar as possible (refer to article for further details). A total of 75 matched pairs were identified this way and examined. Prior to matching, ECMO-referred patients tended to be younger on average (36.5 years compared to 42.8), more likely to be currently or recently pregnant, and had received longer duration of mechanical ventilation. The primary outcome looked at was survival to acute hospital discharge. The hospital mortality rate was 24% in ECMO-referred patients and 50.7% in non-ECMO-referred patients (RR 0.47 [95% CI, 0.31-0.72]; p=0.001). The survival curves show that a significant number of deaths in the non-ECMO referred patients occurred early on (within first 10 days). When the analysis was restricted to patients with confirmed H1N1, the mean RR of death remained between 0.4 to 0.6. ECMO-related adverse events tended to include hemorrhagic complications such as intracranial hemorrhage or hemothorax. While this study does a good job in trying to minimize confounding variables, some that it does not address include how ARDS management strategies between ECMO and non-ECMO hospitals may be different and possibly done better at an ECMO hospital. However, the survival data overall suggests that in patients with severe and rapidly progressive ARDS, early referral for ECMO should be utilized.

“ECMO reduced mortality in patients with H1N1 related ARDS”

This study was aimed at assessing the efficacy of a drug that is targeted at potentiating/modulating the CFTR protein function. The primary end point was the estimated mean change from baseline through 24 weeks in the % of predicted FEV1. Secondary end points included change from baseline through 48 weeks (in FEV1), time to first pulmonary exacerbation (through week 24 and 48 assessed with the use of respiratory domain of the cystic fibrosis questionnaire (CFQ-R, a100 point score indicating a lower effect of symptoms on the patient’s quality of life).

This was a randomized double-blinded, placebo phase III trial. Patients had the G551D mutation or at least one CFTR allele and FEV1 40%-90% of predicted for age, sex and height. The study group took the drug (IVACAFCTOR 150mg every 12hrs. Throughout the study, the patients continued to take their pre-study medications (WITH THE EXECPTION OF HYPERTONIC SALINE). There were total of 161 subjects (83 to the study pop) & (78 to the placebo grp.) with a mean age of subjects being 25.5yrs and mean FEV1 was 63.6. A total of 52% were female subjects. A total of 77 subjects (93%) in the treatment grp and 68 subjects (87%) in the placebo completed the study.

RESULTS: There was an increase from the baseline FEV1 (noted on day 15) in the treatment grp of at least 10.4% compared with a decrease of 0.2% in the placebo. This effect was sustained all through 24 weeks.There was sustained increase in the baseline FEV up to 48 weeks and when analyzed by subgroups (age, FEV1 and sex) this effect was also noted. At week 48 a total of 67% in the treatment group and 41% in the placebo were free from pulmonary exacerbation. Total of 11 subjects in the treatment arm ended up being hospitalized due to exacerbation compared to 23 subjects in the placebo grp.Subjects in the treatment arm also were noted to gain more weight 3.1kg as compared to their counter parts in the placebo 0.4kg group in 24 weeks. Side effects were about the same in both the treatment grp and the placebo grp.

Bottom Line:
- The drug shows promise for the management of CF in subjects who have the G551D mutation and not in the most commonly occurring mutation F508.
- This is obviously a new drug and the long term effects still need to be monitored.
- Subjects in the study were somewhat older than most other studies for Cystic fibrosis (~age for this study was 25yrs) not sure if that played a role.

Lung Cancer in Patients with Chronic Obstructive Pulmonary Disease

Incidence and Predicting Factors. AJRCCM October15
Juan P. de Torres et al

This study looked at the incidence and histologic type of lung cancer in a cohort of patients with COPD. The patients examined were part of the BODE study, which was done to determine if a multidimensional index was a better prognostic indicator of mortality that
FEV1. The patients were recruited in one US hospital and three in Spain. The parameters that this study focused on were: Age, sex, BMI, smoking history and current smoking status, and PFTs.

The patients examined were mostly male (90%) and they were followed for >5 years. 215 patients developed lung cancer and the incidence was calculated at 16.7 per 1000 person-years. 57% of cases had a histologic diagnosis and the most frequent diagnosis was squamous cell carcinoma followed by adenocarcinoma and small cell lung cancer. When they stratified the histologic types by GOLD stages they found that adenocarcinoma was the most frequent histologic type in Stage I patients.

Comparing patients that developed cancer vs those that didn't they found that patients with cancer had a Higher FEV1%, more pack-yrs of smoking, lower DLCO, and a lower IC/TLC ratio. They also noted that the incidence density of lung cancer diagnosis decreased as the degree of airflow obstruction worsened.

A cut off of less than 80% for the DLCO was used for a Kaplan Meier that showed the incidence was much higher in patients with a DLCO <80%. In the discussion they focus on two findings which they feel are most important.

1) their incidence density of lung cancer over time is higher than previously reported. In explaining it the authors mention that their patients are older and have a more significant smoking history than patients in prior studies. The authors also feel that their incidence rate more closely approximates that seen in university clinic than the previous studies did.

2) Older age, low BMI, low DLCO, and GOLD stage I and II are independent risk factors for the development of lung cancer. The authors also feel that a subsequent study looking at the potential associations between histologic types of cancer and the severity of airflow obstruction would be interesting. Unfortunately they did not have the patient population to evaluate this aspect effectively.

I wonder if this article couldn't be used to refine the argument for lung cancer screening. If you are able to tailor your 'at-risk' group more could you see an outcome benefit from screening? There is also a Concise Clinical Review by Criner et al. in this issue that looks at the applications and effects of Lung Volume Reduction Surgery as it pertains to the National Emphysema Treatment Trial (NETT).

The Effect of Insurance Status on Mortality and Procedural Use in Critically Ill Patients. Lyon, Sarah, Nicole Benson et al AJRCCM October 1, 2011; 184: 809-815

This study attempts to investigate whether insurance status affects ICU mortality. With almost 51 million Americans uninsured in 2009, and the recent wave of health care reforms that may reshape the insurance industry, understanding how insurance status may affect health care outcomes is vital. The purpose of this study was to compare 30 day mortality and procedural use in patients with critical illness. This was a retrospective cohort study using data from the Pennsylvania Health Care Cost Containment Council for fiscal years 2005 and 2006. All ICU admits were included. Patients that were older than 65, as well as those with...
was a significant increase in mortality for the uninsured when compared to those with private insurance (odds ratio 1.25; 95% CI 1.04-1.51). The difference between Medicaid and private insurance was not significant when adjusted for patient characteristics. The uninsured were also less likely to receive central venous catheters, tracheostomy, and acute hemodialysis when compared to those with private insurance, even when adjusted for patient characteristics. The reason for these differences is not entirely clear. There is a concern that physicians may approach the care of the uninsured differently than they would the care of someone with insurance or Medicaid. Given the changing landscape of American health care insurance, these results may have important implications for health policy.

VA, military, or medicare insurance were excluded. The three main groups involved were private insurance, Medicaid, and uninsured. 30 day mortality was the primary outcome; the secondary outcomes were frequency of certain procedures deemed common in the ICU: central venous catheter placement, pulmonary artery catheterization, bronchoscopy, acute dialysis (excluding those with chronic renal failure), and tracheostomy. They defined several potential confounders at the start of the study, including age, sex, race, socioeconomic status, primary diagnosis, and severity of illness on admission to the ICU. 138,720 patients were included in the final analysis. 69.2% had private insurance; 26.6% were on Medicaid; 4.2% were without insurance. Absolute 30 day mortality was 4.6% in those with private insurance, 5.7% for the uninsured, and 6.4% for those with Medicaid. When adjusted for patient characteristics, there was a significant increase in mortality for the uninsured when compared to those with private insurance (odds ratio 1.25; 95% CI 1.04-1.51). The difference between Medicaid and private insurance was not significant when adjusted for patient characteristics. The uninsured were also less likely to receive central venous catheters, tracheostomy, and acute hemodialysis when compared to those with private insurance, even when adjusted for patient characteristics. The reason for these differences is not entirely clear. There is a concern that physicians may approach the care of the uninsured differently than they would the care of someone with insurance or Medicaid. Given the changing landscape of American health care insurance, these results may have important implications for health policy.

**Extracorporeal Therapies in Sepsis**

*Anthi Panagiotou, Sergio Gaiao and Dinna N. Cruz*

J Intensive Care Med published online 25 October 2011

We typically approach the treatment of sepsis by targeting infection. Despite a variety of powerful antimicrobials, sepsis (using the term loosely to include the entire spectrum from SIRS to septic shock) remains the leading cause of morbidity and mortality in the ICU. It is becoming increasingly clear over the past 10 years that aiming to ameliorate the dysregulation of the immune system can reduce mortality. These authors reviewed therapies involving modulation of the complement system, circulating cytokines and chemokines, and the coagulation cascade. Interestingly, the authors, nephrologists amongst them, review putative extracorporeal therapies such as hemofiltration, the use of cutoff membranes, and plasma filtration used in a more novel manner to primarily treat sepsis itself as opposed to the just acute kidney injury (AKI) that sepsis may cause. Other, experimental therapies reviewed include systems
that utilize human phagocytic cells and immobilized antibodies for targeted immunomodulation. Just how infection, inflammation, and organ dysfunction result from sepsis is unclear, although it is commonly understood there is an overwhelming generalized host response. These authors term this a destructive "immunologic dissonance" and previously it has been termed CARS or "compensatory anti-inflammatory response syndrome" - the cells become hyporesponsive from an excess and dysregulation of pro-inflammatory and inflammatory mediators. This results in endothelial damage, microvascular dysfunction, impaired tissue oxygenation, and organ injury. It is by a complex series of events that sepsis causes AKI, but apoptosis is a leading thought as opposed to just hypoperfusion (in fact, there is increased renal blood flow but decreased GFR) in the first day or so of severe sepsis. Hemofiltration as an extracorporeal renal support rather than renal replacement has led to a paradigm shift (at least in Europe, where they call it MOST [multiple organ support therapy]). Through diffusion, convection, and adsorption (or a combination thereof), extracorporeal renal support helps maintain proper fluid balance to support cardiac (preload, afterload) and pulmonary (decrease interstitial fluid) systems, treats uremia in AKI, regulates temperature regulation in hypo-/hyperthermia, and clears bilirubin in liver failure. No randomized trials have shown whether intermittent (IRRT) versus continuous (CRRT) renal replacement is superior in the ICU (the Surviving Sepsis Campaign guidelines consider the two the same), but SLED (sustained low efficiency dialysis, hybrid of both) can provide continuous clearance of smaller molecules and the slow fluid shifts are more tolerated in unstable patients, catheter flow problems not withstanding.

So-called high dose renal therapy (more than 35 cc/kg/hr of CRRT or more than 6x/week of IRRT) is thought to help better clear toxins, but numerous studies have shown that it does not improve survival or renal recovery compared to the commonly quoted ATN trial's dose of less than 20cc/kg/hr continuously or 3x/week intermittently. High-volume hemofiltration (effluent flow of 45cc/kg/hr either over 24 hours or as pulse dose) has suggested to improve survival in septic patients by removing inflammatory mediators, increase lymphatic transport, decrease apoptotic mediators, decrease vasopressor requirements, and perhaps increase urine output all at the expense of losing trace vitamins and antibiotics. High-volume hemofiltration (effluent flow of 45cc/kg/hr either over 24 hours or as pulse dose) has suggested to improve survival in septic patients by removing inflammatory mediators, increase lymphatic transport, decrease apoptotic mediators, decrease vasopressor requirements, and perhaps increase urine output all at the expense of losing trace vitamins and antibiotics. High-cutoff membranes have an increased pore diameter to allow up to 100 kDa particles to pass to theoretically remove cytokines at the expense of losing albumin, antibiotics, coagulation factors, and vitamins. There were only two major randomized controlled trials using this. There is limited data on performing CRRT using this membrane while replacing albumin/fresh frozen plasma. Coupled plasma filtration with adsorption (CPFA) nonselectively removes inflammatory mediators without ever having RBC/WBC/platelet contact on the sorbent. Despite improving hemodynamics and respiratory parameters, no improvement in
Utility of Endobronchial Ultrasound-Guided Transbronchial Needle Aspiration in Patients with Tuberculous Intrathoracic Lymphadenopathy: a multicentre study.


EBUS has an established role in diagnosing the source of mediastinal or hilar lymphadenopathy. Typically, it confirms a diagnosis of malignancy or autoimmune disease such as sarcoidosis. This British retrospective observational study attempts to describe the utility of EBUS in diagnosing tuberculous intra-thoracic lymphadenopathy (TBLA). The authors note that TBLA is the most common manifestation of extrapulmonary TB in their study population (9%).

Patients were included in the study if they demonstrated intrathoracic lymph node TB (ultimately) and had been referred for EBUS. Patients with positive sputum or bronchial smear or cultures were excluded from the study. The authors report that 146 of 156 patients were identified as having TB by EBUS, with 44% of these being identified at station 7 (subcarinal). Of particular importance is that nearly half of the patients (74), were found to be culture positive by EBUS. The authors appropriately note that in the absence of other evidence of a positive culture, such a result can help identify multidrug resistant TB strains and help to guide therapy. The fact that the culture rate by EBUS was similar to mediastinoscopy and traditional TBNA (according to studies cited by the authors), suggests that EBUS is as good as other modalities, and can access sites inaccessible by those modalities.

Overall, this study is limited by its observational nature. It would be interesting to see prospectively, how many EBUS negative studies were confirmed by other modalities, or how often EBUS was truly needed. Although its results are preliminary, in experienced hands, it does appear that EBUS is a reasonable modality for lymph node TBNA to confirm suspected TB (when traditional screenings have failed), and when other available modalities may involve increased morbidity (mediastinoscopy), or are unable to access certain lymph nodes (traditional TBNA).