

THE LNC NEWSLETTER

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Medical-Legal Interface

Welcome to Bobbi Black, RN, CLNC Our Newest Member

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Bobbi Black is a registered nurse who in 2001, established *A Legal Resource Service*, a behind the scenes legal nurse consulting company providing support services to attorneys that deal with health-related issues. Her expertise in this area was developed through 25+ years of hands on nursing as a clinic nurse and an operating room first assistant. She has clinical experience in general medicine area such as adult Internal Medicine

and Family Practice as well as sub-specialties such as pediatric, GI, and Endocrine. For 17 years Bobbi was employed by surgeons in Vascular, Orthopedics, General and OB/Gyn my duties included office nursing/patient care as well as operating room first assistant, working with the surgeon performing various procedures associated with each specialty.

Hospital Acquired Infection Bobbi Black RN CLNC

The U.S. Center for Disease Control reports nearly two million patients contract infections during their hospital stay resulting in significant morbidity, mortality and financial expense. Infections that occur within 48 hours of a hospitalization are typically considered hospital acquired infections. In turn, infections that occur after discharge are also considered to have a nosocomial origin, if the organisms were acquired during the hospital stay. Hospital-acquired infections encompass almost all clinically evident infections that do not originate from the patient's original admitting diagnosis.

It is estimated that one out of ten hospital patients acquires a nosocomial infection. Within hours of admission, hospital strains of bacterial can develop in the patient's skin, respiratory tract, and genitourinary tract. Nosocomial infections can be caused by viral, bacterial and fungal pathogens. Fevers in patients, originally admitted with an afebrile diagnosis, warrant further investigation of these pathogens in order to determine etiology.

Theoretically, nosocomial infections can be transmitted via the many modes that typically occur within a community. The five main routes include contact, droplet, airborne, common vehicle and vectorborne. Direct person to person contact between an infected patient, staff members, visitors or indirect transmission through equipment, supplies, procedures or through the air are most common in

hospitals. This movement of pathogens from individual to individual via various routes is referred to as a chain of transmission. A set of guidelines a/k/a Universal Precautions have been established in order to prevent infection of the healthcare worker as well as to break these chains of transmission. Transmission of infection typically require three elements; a source (microorganism), a susceptible host and a means of transmission. Risk factors for invasion of colonizing pathogens also categorized into 3 areas and typically occur in tandem;

1. iatrogenic, which include pathogens on the hands of personnel or equipment;
2. organizational factors such as contaminated air-conditioning systems, water systems and physical layout;
3. patient risk factors such as severity of disease or underlying immunocompromised state and length of hospital stay.

Broken skin and/or mucus membranes and immunosuppression make patient's more susceptible to infections. Pathogens also tend to become incorporated into the normal flora of hospital workers, which in turn makes them a very available source of transmission to patients and difficult to identify and treat once underway. Sources from instrumentation are also considered a potential means of communicating infections. Managing this equipment requires careful handling, Cont on page 3

Acute Fatty Liver of Pregnancy

Dolores Taylor, RN, CLNC

A rare yet life-threatening complication of pregnancy commonly associated with pre-eclampsia, which occurs in the 3rd trimester and post-partum periods is Acute Fatty Liver Disease of Pregnancy. This life-threatening condition has a 23% fetal and an 18% maternal mortality rate (Kaplan, 1985), and affects approximately 1 in 13,000 pregnancies. This condition is characterized by a build up of fat in the liver cells, causing damage quickly; AFLP can lead to coma, bleeding (impaired clotting), organ failure and death of the mother and baby if diagnosis and treatment is delayed. Once diagnosed, the mother may require several blood transfusions and other treatments to stabilize her condition and delivery of the infant is expedited to prevent serious complications. Severe cases have an inexorable downhill course even with delivery of the fetus and deterioration may continue for 72 hours. Both mother and baby are placed in Intensive Care Units for close monitoring.

Symptoms of AFLP resemble those seen in HELLP (hemolysis, elevated liver enzymes, low platelets) Syndrome and include:

- Persistent nausea and vomiting (80%)
- Upper right abdominal pain and/or pain in the stomach (52%)
- General Malaise
- Jaundice (93%)
- Headache
- Anorexia
- Encephalopathy (87%)

- Polydipsia with or without polyuria (80%)
- Pruritis (60%)
- Ascitis (47%)

The usual time course from onset of symptoms to hepatorenal failure is approximately 2 weeks, at which time the maternal mortality rate approaches 30%. Therefore, it is important to quickly and accurately diagnosis AFLP.

What Causes AFLP?

Unfortunately, the cause of this condition is not well understood although genetics may play a role. Studies revealed that nearly 20% of babies born to women with this condition had an “inherited error in body chemistry called long-chain 3-hydroxyacyl coenzyme A dehydrogenase (LCHAD) deficiency that prevents them from properly processing certain fats”. Babies with this disorder develop life-threatening liver, heart and neuromuscular problems unless they are fed a special low-fat diet. All babies born to women with ACLP need to be tested for LCHAD so they can receive prompt treatment.

When prompt treatment is received, women affected with this condition appear to suffer no long-term harm and AFLP rarely occurs in later pregnancies.

Diagnosis of AFLP

AFLP should be suspected when a pregnant woman exhibits polydipsia, increased transaminase levels, decreased platelet count and increased prothrombin time.

Definitive diagnosis of AFLP is through liver biopsy however, this is rarely feasible in pregnant women and it therefore becomes necessary

to rely on laboratory data without waiting for a histologically proven diagnosis. CT, MRI scans and ultrasound are not considered to be helpful in the management of patients with AFLP. Clinical analysis of liver function tests is of paramount importance.

Liver Function Tests (LFT's) describes a panel of tests, each of which assesses discrete aspects of liver function. AST (aspartate aminotransferase) and ALT (alanine amniotransferase) determines liver cell injury or necrosis, synthetic function by measuring albumin level and prothrombin time, and Cholestasis and biliary function are determined by measuring alkaline phosphate, bilirubin, and 5' nucleotidase or gamma glutamyl transpetidase levels.

Other test abnormalities associated with AFLP can include:

- Coagulation abnormalities
 - Hypofibrinogenemia (<300 mg/dl)
 - Prolonged prothrombin time
 - Prolonged partial thromboplastin time
- Conjugated hyperbilirubinemia (usually between 5 and 15 mg/dl)
- Increased alkaline phosphatase (normal is less than 170)
- Hyperuricemia
- Leukosytosis
- Hypoglycemia

Treatment

Hospitalization is a must for any patient cleaning, disinfecting and cont on page 3

Hospital Acquired Infection

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using disposable items whenever possible. These factors, alone or in combination, play a role in the spread of infection and not only lead to higher likelihood of transmission of pathogens, but potentially to an evolution of enhanced disease-causing microorganisms that can harbor within the hospital setting. Of particular concern are the microorganisms that have acquired antibiotic resistant factors, which can lead to life threatening situations.

Interestingly, the scientific literature reveals considerable numbers of studies that have established a link between waterborne pathogens and patient infections. Tap water is typically used for drinking, bathing, ice preparation and rinsing equipment. In the early 1990's contaminated bath water was investigated as a source of microorganism transmission. It was felt that faucets and showers produce vaporized water droplets that migrate on air currents. These water droplets carry bacteria, fungus and protozoan pathogens that settle on surfaces and contact patients as well as staff. A more recent article cited by Anaissie, et al discusses the drinking water supply as a potential source of nosocomial infection. This study revealed approximately 1400 death occurred each year as a result of waterborne infection caused by *Pseudomonas aeruginosa* alone. It is felt, that despite effective control measures no clear guidelines have been established to control this mode of transmission. In

conclusion, they recommended the use of sterile water, as a low-cost approach to avoid exposure, for those patients considered at high risk for infection.

Bacteria is the most common pathogen related to nosocomial infection. Viruses such as hepatitis B and C, respiratory syncytial virus (RSV), rotavirus and enterovirus can be transmitted by hand-to mouth contact. Fungi and parasites are opportunistic organisms and can cause infection during extended course of antibiotic therapy.

Signs and Symptoms of infections include fever, chills, tachycardia, tachypnea, skin rash and general malaise. Some of the most common nosocomial sites include urinary tract, surgical wounds, respiratory tracts, skin, blood, GI tract and central nervous system.

Antimicrobial resistance is becoming a major factor in hospital acquired infections. Of course, physicians are very concerned that many bacterial infections may soon be untreatable as infective organisms have the ability to adapt quickly to a new environment and even a single cell mutation can have a large impact on their disease causing properties allowing them to replicate and evolve rapidly. Hospitals worldwide face unprecedented crises from rapid emergence and dissemination of microbes resistant to one or more antimicrobial agents. Not only does this have adverse effects on public health but it also contributes to increased healthcare costs. It is estimated

these costs range \$4.5 billion to \$11 billion, annually.

It is felt that nosocomial infections double the mortality and morbidity risks of any admitted patient resulting in many deaths per year. In the U. S., nosocomial infections are felt to occur in 5% of all acute care hospitalizations. According to the CDC's National Nosocomial Infections Surveillance Survey, Intensive Care Units rank the highest for central line bloodstream infections.

References:

[Nosocomial Infections](#)
[CDC Infection Control Guidelines](#)
[Arch Intern Med. 2003 Sep 8;163\(16\):1974; author reply 1974-5.](#)

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with a diagnosis of AFLP or if AFLP is suspected. Moderately or severely affected patients should be attended to in the Intensive Care Unit. Glucose infusions should be maintained until a full metabolic recovery is achieved due to the risk of sudden hypoglycemia, which can occur at any time. Platelets and fresh frozen plasma infusions are instituted and prothrombin time and blood glucose levels are monitored.

Maternal recovery is generally slow and takes between 4 to 6 weeks. All women with AFLP and their infants should be screened for LCHAD (long-chain 3-hydroxyacyl coenzyme A dehydrogenase). This is a serious deficiency that Cont on page 4

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usually presents in the latter part of infancy with hypoglycemia, cardiomyopathy, hypotonia and hepatomegaly. In the majority of cases, the disease is severe and can lead to death during the first few years of life.

Potential Medical-Legal Actions

1. Wrongful Death (maternal and fetal) due to delayed diagnosis.
2. Birth injury due to delayed diagnosis.
3. Failure to treat the sequelae of AFLP (resulting in maternal or fetal injury or death).
4. Failure to diagnosis LCHAD in an infant born to a mother who experienced AFLP (leading to infant mortality or development of neurological, cardiac, ophthalmologic, or other abnormalities).

Legal Nurse Review

In an article written by Cynthia Lacker, RN, MS, it is strongly advised that any LNC reviewing a complicated OB case have a strong OB background. "All medical records, especially the third trimester, need to be reviewed for signs and symptoms of AFLP. These can include preeclampsia (elevated blood pressure, edema, and proteinuria), polydipsia, polyuria, nausea, vomiting, hypoglycemia, abdominal pain, jaundice, pruritis, or ascitis. Note that mild jaundice and a modest elevation in serum aminotransferase are important signs against the diagnosis of fulminant hepatitis, viral or toxic. The mild increase in blood pressure, hyperuricemia, and intense thirst are uncommon in fulminant hepatitis but they do favor the diagnosis of Acute Fatty Liver of Pregnancy. AFLP should

be suspected when persistent vomiting, malaise, encephalopathy or jaundice appear in the final weeks of pregnancy or in early puerperium".

If signs and symptoms were present, determine whether appropriate laboratory tests were ordered and analyzed:

- Liver Function Tests, especially ALT
- Appropriate analysis of moderately elevated ALT
- PT, PTT
- Bilirubin
- Serum glucose levels
- Serum uric acid levels

In your review, ask yourself the following:

- Was the patient hospitalized as soon as AFLP was suspected?
- Was delivery promptly carried out?
- Were moderately or severely affected patients treated in the ICU?
- Were sequelae anticipated and treated appropriately (especially coagulopathy, renal failure and serum glucose levels)?
- Was the mother counseled regarding the potential LCHAD deficiency and offered appropriate genetic counseling?
- Was the infant screened for LCHAD?

In subsequent pregnancies, was the gravida well informed of the risks of recurrence of AFLP? Were the required tests (liver tests, uric acid, prothrombin time, and possibly antithrombin III) carried out bi-weekly in the third trimester?

"Although rare, the high morbidity and mortality rates associated with AFLP make this diagnosis fraught with medical legal implications. Recent research into the correlation between AFLP and LCHAD may lead to prospective diagnosis of pregnant women sometime in the future, Until then, recognition of symptoms, accurate differentiation, and appropriate medical intervention are critical migrating factors against potential legal action related to the diagnosis and treatment of this disorder" (Lacker).

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Going Paperless How and Why

Pattie Patterson RN, LNCC, CLCP

Okay, it's now the beginning of 2007, a new year, and with it comes those resolutions. My first and foremost resolution for this year is to go paperless! Since I work from home, I made this resolution not to just keep up with the times, but in desperation, to gain back my home. I no longer invite guests over, as the only place for them to sit is on piles and piles of banker's boxes full of medical records. I even lost my dog, Murphy for about 6 hours one day last week, then finally discovered his cold black nose peaking out from under a lid of one of my boxes, where he had hidden, afraid to come out, as he had nearly been clipped when a bound pile of records crashed to the floor when I was making a futile attempt to organize. (I guess you've got a picture now, right.) The funny thing is whenever a client calls me to discuss a case; I can always locate the record within seconds of the call.

But I digress here as the point of this article is to point out the pros and cons of going paperless. But, I guess having my home back would be a BIG plus, so not so much a digression.

The first reason to go paperless would be to utilize less physical space. So how do we go about it, and will it be time efficient and cost efficient? Let's first look at what we will need to go paperless.

1. A good computer with a large hard drive is essential for this to work. I recently purchased a computer with a 320 gig hard drive and a 2 gig memory with a dual core processor, as this is

currently the fastest processor on the market.

2. Some sort of back up system to be sure your documents are safe from viruses and computer crashes is also essential. You need to have a back up system away from your office and computer. This can be:
 - b. A virtual file/storage system, or
 - c. back up disks of your work, kept in a fire safe storage unit or
 - d. An external hard drive or
 - e. On a second computer.

I have chosen to use an external hard drive, a second computer and to back up all files on CD ROMs. I am also currently looking at a virtual file storage system. While this may sound like an over kill, after having lost all of my data in the past from a fairly new system (less than a year old) that crashed before I had the chance to back up my data, I decided it was better to err on the side of caution, as I now have about three times as many files as I did at that time. The lesson I learned and I hope that others can learn from my mistake is to back up your information ASAP and not wait, as there is NEVER a guarantee even with a new system.

3. Some sort of program to save the documents in an easily transferable format is also essential, as not to lose the integrity of the document. Since PDF format seems to be the gold standard for transferring of documents, this should be considered when making your determination. Although I am

aware of other programs that use PDF as their basis for document transfer, I chose to go with Adobe Acrobat Pro 8, as I have found it to be very user friendly with a small learning curve, unlike some of the other programs I tested.

4. A good scanner to transfer active documents and files from the paper variety to paperless. If there are a lot of active files, then it might be more cost effective to have a company who specializes in this to perform this service for you, as they can also destroy the files for you after they have been scanned in.
 - a. You may want to just start from this point forward transferring files, if it is too cumbersome to transfer all of the records you have active, but this would need to be decided by the individual firm.

My plan is, as least at this juncture, to start from this point forward converting my paper files to my paperless system. This way although I will still have documents in paper form, I don't have to go to the expense of converting those files, and can slowly convert those documents to paperless as I need to back them up for archives. I feel that this is a more cost effective way to go, at least for me.

5. A second monitor, while not essential, is a convenience to compare documents and place them in proper order. The greatest advantage of having a second monitor is cont on p. 6

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that you can easily compare documents, drag (copy) from one document on one monitor to another document on the second monitor where you can drop (paste) that information. In other words, you can more easily view both documents simultaneously if they are on separate monitors.

6. Finally, a good document management program is essential to have quick, easy access to your documents. I have no advice on this program yet, as I have not decided upon the program I want to use for this. However, I will be looking at several programs before I make my final decision. With the

advances in Adobe Acrobat Pro 8 I may not need another program, as with Pro 8 you can group all files related to one particular case into a packet, while maintaining the integrity of the individual files, both within the packet and as separate files outside of the packet.

The next reason to go paperless is that in March of 1997, the FDA published its final rule on electronic records, electronic signatures and audit trails. This rule, known as 21 CFR Part 11, establishes the criteria under which the FDA recognizes electronic records and electronic signatures as the equivalent of paper records and traditional handwritten signatures. With the

publication of this rule, more and more medical facilities and physician's offices are going paperless. So, it just makes sense to have the same sort of practice in place to deal with these types of records and files.

As more and more facilities and offices go to paperless documentation, it will make it easier to deal with these records if we are already familiar with and have access to software used in working with those records.

A final reason to go paperless is the overall cost of copying medical records as well as housing and sharing them will be significantly less than with the paper system.

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