[Cite as *Ackermann v. Univ. of Cincinnati*, 2003-Ohio-1781.]

IN THE COURT OF CLAIMS OF OHIO

FRANK K. ACKERMANN, et al.	:	
Plaintiffs	:	CASE NO. 2001-05111
v.	:	DECISION
UNIVERSITY OF CINCINNATI	:	Judge Everett Burton
Defendant	:	

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{¶1} Plaintiffs bring this action against defendant alleging claims of medical malpractice and wrongful death arising out of anesthesiology services provided by defendant's employees to plaintiff's decedent, Regina Ackermann.[1] Plaintiffs contend that defendant's employees, Henry Johnson, M.D., Leonard Lind, M.D., and Certified Registered Nurse Anesthetist J. Hemesath, negligently failed to provide adequate ventilation and oxygenation to Ackermann following surgery and that the lack of ventilation caused her death.[2] The issues of liability and damages were bifurcated and the case proceeded to trial on the issue of liability.

{¶2} On October 4, 1996, Ackermann entered University Hospital as an outpatient for an elective bilateral breast implant removal and replacement. Henry Neale, M.D.,

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[1] For purposes of this decision, "plaintiffs" refers to Frank and Susan Ackermann, Co-Executors, and "Ackermann" refers to plaintiffs' decedent, Regina Ackermann.

[2] On August 8, 2001, the court issued an entry wherein it noted that the parties agreed to abide by the stipulation of civil immunity filed in a prior case regarding Drs. Johnston and Lind.

successfully performed the surgery that same day. The following is a brief summary of the testimony presented at trial.

{¶3} After Ackermann's surgery, Dr. Johnston, the anesthesiologist in charge of the operation, left the area to attend to another patient. According to the medical records, Ackermann was stable, awake and following commands soon after surgery was complete. Between approximately 9:15 a.m. and 9:30 a.m. the endotracheal airway tube that had been used to administer oxygen and anesthetizing gases during surgery was removed by Hemesath. Soon after the tube was removed, Ackermann experienced respiratory difficulty as her oxygen saturation level dropped below 90 percent. Hemesath attempted to deliver oxygen to Ackermann with an anesthesia mask and positive pressure but Ackermann's oxygen level continued to drop.

{¶4} At approximately 9:30 a.m., Hemesath paged Dr. Johnston when it became apparent that the mask ventilation device was not effective. By the time Dr. Johnston arrived, less than one minute after he was paged, Ackermann's oxygen saturation had dropped to 72 percent. Dr. Johnston quickly assessed Ackermann's condition by checking her pulse and noting that her heart rate was rapid. When Dr. Johnston spoke to her, Ackermann opened her eyes and responded by squeezing his fingers when she was asked to do so. Dr. Johnston began to assist Hemesath by applying pressure to the reservoir bag on the mask ventilation device while Hemesath held the mask. Dr. Johnston then switched tasks with Hemesath so that he was holding the mask and Hemesath was squeezing the reservoir bag. To facilitate ventilation, Dr. Johnston placed an oropharyngeal airway device into Ackermann's mouth to form a channel at the base of her tongue. After the oropharyngeal device and mask proved unsuccessful, Dr. Johnston suspected that Ackermann was experiencing a laryngospasm, a muscle spasm in the vocal cord area, and he applied positive pressure to force air into the lungs. Next, Dr. Johnston administered the drug succinylcholine to relax the throat muscles.

{¶5} When he realized that Ackermann was not responding to the attempts to improve her oxygenation, Dr. Johnston decided to re-intubate Ackermann and to call another anesthesiologist, Dr. Lind, for assistance. Approximately four or five minutes after he had returned to treat Ackermann, Dr. Johnston began intubating her with the aid of a laryngoscope. Dr. Lind arrived after the tube was placed and determined that Ackermann had a very weak pulse and abnormal breath sounds. Dr. Lind thought he heard air entering both lungs and observed chest movements. However, there was no improvement in either her oxygen saturation levels or end-tidal carbon dioxide readings.[3] Dr. Lind recalled hearing the sounds of alarms warning that Ackermann's monitors were detecting low levels of oxygen and carbon dioxide.

{¶6} After placing the endotracheal tube, Drs. Johnston and Lind reassessed Ackermann's condition and considered the possibility that the tube was misplaced. Dr. Johnston decided to replace the endotracheal tube and again used a laryngoscope to view the epiglottis, but he was unable to see the vocal cords on either of the first two attempts. When the second tube was placed, Dr. Lind again observed bilateral chest movement and heard air entering the lungs; however, the monitor did not detect end-tidal carbon dioxide and Ackermann's condition continued to deteriorate as her pulse weakened and her heart rate slowed. The doctors noted copious fluid secretions that appeared in the pharynx and required suctioning. Some time between 9:50 a.m. and 9:52 a.m., Ackermann's blood pressure dropped to an unreadable level and an emergency code team was called. Ackermann failed to respond to medication that was administered to increase her heart rate. A third attempt to intubate Ackermann was performed after the code was called and again Dr. Lind verified breath sounds. Shortly thereafter, Ackermann experienced cardiac

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[3] End-tidal carbon dioxide is monitored to determine the effectiveness of ventilation by measuring the amount of exhaled carbon dioxide.

arrest and she was pronounced dead at 10:17 a.m. Dr. Lind later confirmed by a visual inspection that the endotracheal tube extended into the esophagus rather than the trachea.

{¶7} On October 5, 1996, an autopsy was performed by John Gerber, M.D., a pathologist at the Hamilton County Coroner's office, to determine whether an underlying illness contributed to Ackermann's death. Dr. Gerber discovered that Ackermann had generalized amyloid deposits in her heart, lungs, liver, thyroid, esophagus, kidney, ovary, spleen, and lymph nodes. Amyloids are abnormal proteins that form scar tissue in the body. Dr. Gerber concluded that the cause of Ackermann's death was cardiac amyloidosis. The autopsy also confirmed that the endotracheal tube extended into Ackermann's esophagus. Carl Parrott, Jr., M.D., the Coroner for Hamilton County, subsequently referred Ackermann's medical records to John Collins, M.D., an anesthesiologist, for an independent evaluation. Dr. Collins concluded that the cause of Ackermann's death was asphyxia. On June 6, 1997, after reviewing Dr. Collins's report and the medical record, Dr. Parrot filed an affidavit changing the cause of death on the death certificate to asphyxia secondary to esophageal intubation.

{¶8} In order to prevail on a claim of medical malpractice or professional negligence, plaintiffs must first prove: 1) the standard of care recognized by the medical community; 2) the failure of defendant to meet the requisite standard of care; and 3) a direct causal connection between the medically negligent act and the injury sustained. *Wheeler v. Wise* (1999), 133 Ohio App.3d 564; *Bruni v. Tatsumi* (1976), 46 Ohio St.2d 127. The appropriate standard of care must be proven by expert testimony. *Bruni* at 130. That expert testimony must explain what a medical professional of ordinary skill, care, and diligence in the same medical specialty would do in similar circumstances. Id.

{¶9} Plaintiffs allege that defendant's employees were negligent in failing to: 1) provide adequate ventilation to Ackermann after her operation; and 2) use one of the accepted airway management techniques after the second intubation did not increase

Ackermann's oxygen saturation level. Defendant contends that Ackermann died as a result of undiagnosed cardiac amyloidosis which caused her to develop acute pulmonary edema shortly after her surgery.

{¶10} With regard to defendant's assertion that amyloidosis was the cause of Ackermann's death, plaintiffs presented the expert testimony of Dr. Michael Miller, a board-certified cardiologist and internist. Dr. Miller explained that amyloidosis comes in three general types. The most significant type is primary amyloidosis which is caused by an overproduction of proteins that form deposits in tissues and organs and lead to clinical problems including heart disease. The second type, reactive amyloidosis, is related to certain inflammatory or infectious conditions. The third type, senile amyloidosis, is associated with the normal aging process and is usually diagnosed through an autopsy because the majority of cases do not lead to recognized symptoms or complications.

{¶11} Dr. Miller opined that Ackermann had no clinical symptoms of primary amyloidosis and that she did not die from sudden cardiac arrest. Dr. Miller emphasized that, two days prior to her surgery, Ackermann had received an extensive cardiovascular examination and had been cleared for surgery by her cardiologist, James Gustin, M.D. According to Dr. Miller, the ventriculogram that assessed Ackermann's "heart pumping function" should have been abnormal if she had a significant degree of amyloidosis in her heart tissue. However, Dr. Miller stated that his review of the ventriculogram revealed a normal left ventricular contraction pattern with a normal left ventricular ejection fraction. Dr. Miller concluded that Ackermann's cardiac report showed she had a low risk for having a cardiac event during surgery and that "her heart did extremely well during this whole process." Dr. Miller opined that Ackermann "would have had a lethal arrhythmia a lot quicker" if she had not had such a "strong" and "powerful" heart.

{¶12} In contrast to Dr. Miller's opinion, defendant's expert, Paul Hirsh, M.D., a board-certified cardiologist, testified that Ackermann experienced acute pulmonary edema

as a result of her surgery. Hirsh attributes the acute pulmonary edema to cardiac amyloidosis. According to Dr. Hirsh, Ackermann's heart rate began to increase following her surgery but the left ventricle of the heart could not fully perform its function due to the amyloid disease. In Dr. Hirsh's opinion, Ackermann's abnormal heart function caused fluid to back up into her lungs which were stiff with amyloid deposits. Dr. Hirsh opined that Dr. Johnston's efforts to ventilate Ackermann by intubation were ineffective because Ackermann's lungs became filled with fluid and, consequently, her condition rapidly deteriorated.

{¶13} Defendant contends that Ackermann's autopsy provided further evidence of her amyloid disease. In addition to amyloid deposits, Dr. Gerber's autopsy revealed cardiomegaly, an enlarged heart; "clubbing" of the fingers; and heavy congestion (fluid) in the lungs. Dr. Hirsh testified that clubbing is a symptom of repeated episodes of abnormally low blood oxygen levels. According to Dr. Hirsh, the finger clubbing showed that Ackermann did not have subclinical amyloidosis, but rather, that she had experienced the middle phase of the disease which is characterized by organ changes.

{¶14} Dr. Robert Lawrence, plaintiff's pathology expert, provided expert testimony by deposition based upon his review of medical records that included the autopsy report, photographs and the coroner's microscopic slides. Dr. Lawrence confirmed that Ackermann had amyloid deposits in her heart; however, he described Ackermann's heart as "pretty normal" and testified that she did not have significant clinical symptoms of cardiac amyloidosis. Dr. Lawrence testified that symptoms of congestive heart failure would be consistent with cardiac amyloidosis but he excluded that diagnosis based upon pre-surgical cardiology tests that found Ackermann had normal left ventricle function and a normal coronary angiography. According to Dr. Lawrence, clubbing of the fingernails indicates chronic lack of oxygen due to impaired lung function but does not suggest congestive heart failure. Dr. Lawrence concluded that the proximate cause of Ackermann's

death was hypoxia resulting from esophageal intubation following respiratory distress due to post-extubation respiratory insufficiency or laryngospasm.

{¶15} Plaintiffs' anesthesiology expert, Dr. Martin Bogetz, testified by way of deposition regarding the standard of care for treating a patient with an upper airway obstruction. Dr. Bogetz testified that Ackermann's airway was completely obstructed when her arterial oxygen saturation level dropped to 70 percent. Dr. Bogetz described several techniques of airway management that ranged from non-surgical techniques, such as mask ventilation and intubation, to emergency surgical techniques, such as a tracheostomy. Dr. Bogetz was not critical of the procedures that Drs. Johnston and Lind performed up to the time of the second intubation. According to Dr. Bogetz, the use of mask ventilation, the oropharyngeal device and the first two intubations constituted reasonable attempts to bypass the suspected obstruction. However, Dr. Bogetz was critical of defendant's employees for not taking more aggressive action to establish an airway before Ackermann experienced heart failure. Based upon the timeline that he constructed from the medical records, Dr. Bogetz opined that defendant's employees performed below the standard of care by failing to attempt other well-known alternatives to airway management between approximately 9:35 a.m. and 9:50 a.m.

{¶16} Drs. Johnston and Lind testified that they did not use alternative ventilation techniques because they did not believe that they were encountering a difficult airway situation. Dr. Johnston testified that it is neither uncommon nor below the standard of care to have to re-intubate a patient after an unsuccessful first intubation. Dr. Johnston believed the tube was properly placed in the trachea on each of the three attempts because Dr. Lind heard air entering the lungs and because both he and Dr. Lind observed bilateral chest movement. Dr. Johnston testified that he decided to perform the second and third intubations based upon the inability to obtain end-tidal carbon dioxide readings.

{¶17} With regard to the significance of the amyloid deposits in Ackermann's organs, the court finds that the evidence and expert testimony does not support a finding that Ackermann suffered from symptoms of primary amyloidosis or that she died as a result of amyloid-related heart disease. Indeed, Ackerman's pre-surgery cardiac evaluation revealed no significant heart disease or abnormal heart function. Both the pre-surgical angiogram and ventriculogram failed to show any pathology and, based upon these tests, Ackermann was cleared for surgery. It is also undisputed that Ackermann led an active lifestyle which included hiking and a rigorous exercise routine that was not consistent with abnormal heart function. The court also finds the testimony of Drs. Miller and Lawrence to be persuasive regarding their opinion that the amyloid deposits in Ackermann's heart tissue and other organs were not significant enough to cause clinical symptoms.[4] Dr. Miller also found no evidence of abnormal functioning of other organs that would be consistent with primary amyloidosis. The court concludes that Ackermann had neither cardiac amyloidosis nor primary amyloidosis. Rather, the absence of measurable end-tidal carbon dioxide and the steady drop in Ackermann's oxygen saturation level that occurred after the endotracheal tube was removed following surgery show that Ackermann was not receiving proper ventilation. The court finds that the testimony and evidence supports the determination of the Hamilton County Coroner's office that the cause of Ackermann's death was asphyxia.

{¶18} The expert witnesses agreed that it was within the standard of care for defendant's anesthesiologists to perform the first two intubations; however, plaintiffs contend that defendant's employees should have been more aggressive in their attempts

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[4] The court also finds that the autopsy records noting clubbing of the fingers does not establish that amyloidosis caused chronic pulmonary disease in light of Dr. Gerber's testimony that clubbing can be caused by other conditions and that clubbing of the toes was not noted.

to ventilate Ackermann. Plaintiff's expert, Dr. Bogetz, was particularly critical of defendant's employees for not responding in a timely and efficient manner once it became apparent that Ackermann was experiencing respiratory difficulty. Although the evidence establishes that Dr. Johnston was paged to return to the operating room at approximately 9:30 a.m., it is not clear from the records either what transpired during the next 20 to 25 minutes before Ackermann experienced heart failure, or the exact time that each intubation was performed.

{¶19} The expert testimony established that Ackermann's oxygen saturation level had dropped to 72 percent when Dr. Johnston arrived at the operating room at approximately 9:30 a.m. According to Dr. Bogetz, an oxygen saturation level of 70 percent signifies a severely impaired condition where an airway obstruction must be either resolved or bypassed because an inadequate amount of oxygen is being delivered to the vital organs. Dr. Bogetz testified that the use of the mask ventilation device, oral airway and the two attempts to intubate Ackermann should have required only a few minutes, leaving ample time to employ alternative ventilation techniques. Based on the expert testimony in this case, the court finds that there was sufficient time available to perform an alternative technique when intubation attempts failed.

{¶20} Although the medical experts agreed that there is no absolute standard for emergency management of a difficult airway, there was no dispute that alternative techniques must be used after initial attempts to ventilate a patient have failed.[5] Both Drs. Johnston and Lind testified that they believed that with each intubation the tube had been properly positioned, including the third attempt that was later verified to be improperly placed. The court finds that defendant's physicians did not attempt alternative techniques

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[5] Plaintiffs' pathologist estimated that with either a complete or partial airway obstruction, a patient will begin to experience irreversible brain damage in eight to ten minutes.

because they incorrectly believed that their intubation attempts had successfully delivered air to Ackermann's lungs. The court further finds that the failure to perform alternative ventilation techniques after attempts at intubation were unsuccessful was a breach of the accepted standard of care and that such failure was the proximate cause of Ackermann's death. Accordingly, judgment shall be rendered in favor of plaintiffs.

EVERETT BURTON
Judge

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