Mechanical Ventilation at Angell

When patients develop respiratory failure, mechanical ventilation can be a life-saving intervention. Mechanical ventilation is used for Angell patients who suffer from severe lung disease or who cannot ventilate adequately.

Positive end-expiratory pressure (PEEP): Disease in one area of the lung can lead to collapse of not only that area, but also neighboring and otherwise normal regions of the lung. Preventing the intrapulmonary pressures from reaching zero by providing PEEP keeps regional atelectasis from occurring and enables gas exchange in these lung regions. This is arguably the most important function of mechanical ventilation in certain cases.

Facilitate breathing: Mechanical ventilation, in some cases, is the only way to prevent respiratory muscle fatigue and arrest. Anesthetizing and ventilating these patients are very effective ways to relieve their suffering and can prevent a patient's struggle to breathe during a respiratory crisis.

Mechanical ventilation requires a team of highly-trained doctors and technicians. Advanced capnopleural monitoring is required 24 hours a day to optimize patient care. Routine monitoring of a ventilated patient includes capnometry, pulse oximetry, continuous ECG, arterial and central venous blood pressure monitoring, urine output monitoring and intermittent blood gas analyses.

At Angell, at least one doctor from the Emergency/Critical Care service remains at the bedside of the ventilated patient at all times.

Recently, Chloe, a cat with an asthmatics-anæsthetised adrenal tumor that led to severe hypokalemia and muscle weakness, was ventilated until high-dose potassium supplementation and spironolactone therapy improved her potassium levels. Another recent success story was Krisy, a dog with severe pneumonia secondary to laryngeal paralysis. She was already anesthetized and intubated when she was transferred to Angell from her referring hospital. She went on to make a full recovery with the help of a laryngal takedown surgery and several days of mechanical ventilation.

Early identification of patients who may benefit from mechanical ventilation increases the chances of success. If you believe you have a patient who may require ventilation at Angell, please call 617-522-7283.

Practice Tip: Use of Fenoldopam in Cats with Acute Renal Failure

A cute renal failure, common in cats, can result from a variety of causes, such as ischemic, toxic and infectious results. Although IV fluid therapy is a cornerstone of treatment, diuretic therapy should be considered in cats who become oliguric. Classically, low-dose dopamine has been used as the main renal dopaminergic receptor. Renal dopaminergic (DA-1) receptor stimulation increases intracellular cyclic adenosine monophosphate (cAMP) dependent kinase activity, inhibition of neutral sodium–potassium ATP activity, inhibition of angiotensin II inhibition of ADH stimulation of renal dopamine-2 (DA-2) receptors inhibits norepinephrine, renin and Na/K ATP activity. However, the response to low-dose dopamine in cats with acute oliguric renal failure is inadequate, and it was long suspected that cats might lack renal DA-1 receptors.
**CASE STUDY**

**Plastic and Reconstructive Surgery**

**Michael M. Pavletic, DVM, DACVS**

**PATIENT**

Charlie, a Bernese Mountain Dog, under one year of age.

**PRESENTING CONCERN: CLEFT LIP**


Charlie at suture removal. Immediate postoperative photograph of Charlie.

Cleft lip (Cheiloschisis) is the incomplete closure of the upper lip. The split-lip loosely resembles the upper lip of a rabbit, giving rise to the term, “hare-lip.” In humans, cleft lip is seen in approximately 1 in 1,000 live births, although the frequency can vary according to race and sex. There are no canine population, although it has been reported in a variety of breeds, including brachycephalic breeds such as the Boston Terrier and the Pekingese, as well as Schnauzers, Labrador Retrievers, Cocker Spaniels, Dachshunds and German Shepherds. Cleft lips have also been seen in feline populations, although the frequency is unknown. There are no reports of cleft lips in the dog population, although it has been reported in a variety of breeds, including brachycephalic breeds such as the Boston Terrier and the Pekingese, as well as Schnauzers, Labrador Retrievers, Cocker Spaniels, Dachshunds and German Shepherds. Cleft lips have also been seen in feline populations, although the frequency is unknown.

**DIAGNOSIS/TREATMENT**

Charlie, an otherwise bright and healthy Bernese Mountain Dog, presented with a cleft lip and a small adjacent palatal defect slightly dorsal to the upper incisor teeth. Charlie also had difficulty retaining water and food in his mouth when eating. Surgical reconstruction was accomplished using a surgical procedure developed by Dr. Pavletic that realigned Charlie’s outer lip to the midline of his face. The inner mucous membrane and outer skin surfaces were precisely incised and sutured, restoring facial symmetry. Postoperatively, Charlie was fed soft food for the following two weeks and wore an Elizabethan collar to prevent rubbing or pawing at the surgical area until healing was complete. Sutures were removed after two weeks.

**FOLLOW UP**

Charlie ate normally and resumed playful activities with his owners. An additional benefit of this surgery was the relatively normal appearance of this wonderful dog.

**FOR MORE INFORMATION**

Dr. Pavletic is the Chair of Angell’s Surgery Department and specializes in soft tissue surgery. He is a recognized specialist and lecturer in the area of plastic and reconstructive surgery for the closure of problematic defects secondary to trauma, cancer surgery or congenital defects. Dr. Pavletic is the Director of Surgery at Angell, Mike Pavletic, DVM, DACVS, author of the Atlas of Small Animal Wound Management and Reconstructive Surgery. This third edition of this reference book for veterinary surgeons will be published by Wiley Blackwell later this year. Dr. Pavletic and the other Angell surgeons are available for consultation on a variety of orthopedic and soft tissue procedures.

To refer a patient to Angell’s Surgery service, please contact Referral Coordinator Eleanor Cousino at 617 522-5011. For more information, please visit wwwmspca.org/surgery.