

Introduction

High frequency ventilation (HFV) is a method of mechanical ventilation characterized by high respiratory rates and low tidal volumes. HFV was originally developed as a technique to prevent barotrauma during mechanical ventilation of neonates.

Methods

We report an application of HFV during cerebral angiography to minimize respiratory movements and subsequent motion artifact.

Results

Tidal volumes as low as 150 mL can be delivered in the adult patient resulting in no visible chest wall rise while maintaining adequate gas exchange. HFV allows for longer periods of motionless fluoroscopy than temporary apnea. In the field of cardiac electrophysiology, this type of ventilation has been shown to improve catheter stability and lower the rate of repeat ablation procedures.³ During ablative procedure for liver, kidney, and lung tumors, HFV has been used for greater than 2 hours without resulting in hypercapnia.^{1,2}

Conclusions

We describe our experience of using high frequency mechanical ventilation during cerebral angiography. In our experience, high frequency mechanical ventilation during neurointerventional procedures minimizes motion artifact while maintaining adequate oxygenation and normocapnia.

Learning Objectives

Understand ventilation techniques used during neurointerventional procedures.

References

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2. Denys A, Lachenal Y, Duran R, Chollet-Rivier M, Bize P: Use of high-frequency jet ventilation for percutaneous tumor ablation. *Cardiovasc Intervent Radiol* 37:140-146, 2014
3. Hutchinson MD, Garcia FC, Mandel JE, Elkassabany N, Zado ES, Riley MP, et al: Efforts to enhance catheter stability improve atrial fibrillation ablation outcome. *Heart Rhythm* 10:347-353, 2013

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