

Preventing damage in single lung ventilation – New insights in the pathophysiology of lung and upper airway injury

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When we consider damage during single lung ventilation, a number of different injuries can occur. First the introduction of the double lumen tube or other devices may cause injury of the upper airway. New techniques like the EZ-blocker might prevent this type of trauma.

Secondly switching from two-lung to one-lung ventilation, causes an increase in shunt fraction and although hypoxaemia during one-lung ventilation has become less common, it may still occur in about 10% of cases. New surgical techniques may also affect oxygenation during one-lung ventilation. The increased use of the supine position and the increased application of thoracoscopic tech-

niques may adversely affect the oxygenation of the patient.

Besides direct intra-operative problems, one-lung ventilation has been shown to increase the risk of post-thoracotomy acute lung injury.

So-called volutrauma and barotrauma are well-known issues for most anaesthesiologists. Recent studies have shown that also short time low tidal mechanical ventilation induces an inflammatory reaction in healthy lungs, with a possible role for TLR4. Increasing the understanding of the innate immune response to mechanical ventilation may lead to future treatment advances in ventilator-induced lung injury.