

Non-AEM Monopolar Laparoscopic Instruments:

Complication and Mortality Rates from Thermal Bowel Injuries

Description	Data
Number of monopolar laparoscopic procedures performed in the USA every	2,550,000
year:	procedures
3 million laparoscopic procedures annually	Annually ¹
85% use monopolar electrosurgical energy	
Incidence of thermal bowel injuries during laparoscopic surgery:	0.065% ²⁻⁵
 1.3 bowel injuries in 1000 procedures (50% are due to thermal injury) 	
thermal injuries likely underreported	
Incidence of death from thermal bowel injuries during laparoscopic surgery:	0.01625% ⁶
Peritonitis has a mortality rate of 25%	
• 0.065% x 25% = 0.01625%	
Number of preventable monopolar laparoscopic complications	16,575
over a 10 year period, from thermal bowel injury:	
 (2,550,000 procedures annually) x (0.065% risk) x (10 years) 	
Number of preventable monopolar laparoscopic deaths	4,144
over a 10 year period, from thermal bowel injury:	
 (2,550,000 procedures annually) x (0.01625% risk) x (10 years) 	

Non-AEM Monopolar Laparoscopic Instruments:

Complication Rates from All Thermal Injuries

Description	Data
Number of preventable monopolar laparoscopic complications	62,080
over a 10 year period, from all thermal injuries:	
 4.869 injuries in 1000 procedures⁷ (50% are due to thermal injury²) 	
\circ (4.869/1000)*(50%) = 0.243% risk	
 (2,550,000 procedures annually) x (0.243% risk) x (10 years) 	



References:

- Pyrek K. Education in electrosurgery technology is key for patient safety. Infection Control Today. http://www.infectioncontroltoday.com/articles/2002/07/education-in-electrosurgery-technology-is-key-for.aspx. Accessed April 10, 2013.
- Bishoff JT, Allaf ME, Kirkels W, Moore RG, Kavoussi LR, Schroder F. Laparoscopic bowel injury: incidence and clinical presentation. *J Urol*. 1999;161(3):887-890.
- 3. Nduka CC, Super PA, Monson JR, Darzi AW. Cause and prevention of electrosurgical injuries in laparoscopy. *J Am Coll Surg.* 1994;179(2):161-170.
- 4. Southern Surgeons Club New England Journal of Medicine 1991 Nov 21;325(21):1517.
- Polychronidis A, Tsaroucha AK, Karayiannakis AJ, et al. Delayed perforation of the large bowel due to thermal injury during laparoscopic cholecystectomy. J Int Med Res. 2005;33(3):360-363.
- Brill AI, Feste JR, Hamilton TL, et al. Patient safety during laparoscopic monopolar electrosurgery - principles and guidelines. JSLS. 1998;2(3):221-225.
- AHRQ. Patient safety quality indicators composite measure workgroup final report. http://www.qualityindicators.ahrq.gov/Downloads/Modules/PSI/PSI%20Composite%20Development.pdf. Accessed October 30, 2013