

Changes in the light intensity of the fiberoptic laryngoscope blade by steam sterilization

Reusable fiber optic laryngoscope blades deteriorate with repeated steam sterilization

After 80 steam sterilizations, a 50–60% reduction in the light intensity of reusable fiber optic laryngoscope blades was observed

Objective

- To evaluate the effects of steam sterilization on the light intensity of conventional reusable fiber optic laryngoscope blades and to compare this with the light intensity provided by single-use, plastic laryngoscope blades

Methods

- This was a laboratory study that compared the light intensity of six new reusable fiber optic Macintosh laryngoscope blades following steam sterilization with that of six new plastic single-use Macintosh size 3 laryngoscope blades
- Each of the reusable laryngoscope blades underwent 80 cycles (10 cycles per week) of steam sterilization at 135°C for 10 minutes with an internal pressure of 0.22 MPa
 - Light intensity was measured before sterilization and after every 10 cycles of sterilization using a light meter under florescent light
 - The batteries in the laryngoscope were replaced prior to each measurement
 - Photographs were taken of the blade tip of each of the reusable blades at the start of the study and after every 10 sterilizations
- The light intensity of the single-use laryngoscope blades was also measured
- Analysis of variance (ANOVA) was used to compare the light intensity of the reusable and single-use laryngoscope blades

Results

- The light intensity of the reusable laryngoscope blades tested was significantly brighter than that of the single-use, plastic blades following the first 20 steam sterilizations
- After 80 steam sterilizations (without washing), a 50–60% reduction in the light intensity of reusable fiber optic laryngoscope blades was observed, resulting in a light intensity significantly lower than that of the single-use, plastic blades

Conclusion

- Reusable fiber optic laryngoscope blades deteriorate with repeated steam sterilization, eventually resulting in a light intensity that is significantly lower than that of single-use, plastic laryngoscope blades