

Evaluation of the Ambu aScope, a new single-use flexible videoscope

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Fibreoptic scopes (FOS) are well established in the management of difficult airways [1]. However these reusable devices need to be disinfected *before* each use. This cleaning process can take 20-60 minutes to complete [2]. In addition, some contamination may remain despite cleaning [3]. Ambu aScope™ is a recently introduced flexible videoscope. This portable, light-weight, single-use device has not been evaluated before. We therefore decided to compare the handling and ease of use of the Ambu aScope (Ambu) against an Olympus reusable fibreoptic scope (Olympus).

Methods

We invited 75 anaesthetists to take part in this randomised cross-over study. Each volunteer was asked to place the FOS via the nasal route in the trachea of the AirSim Multi manikin (Trucorp Ltd). The manikin was modified by narrowing the airway in three places. A video of the fibreoptic view was recorded. We measured the time to complete the task (from handing the scope to the time the tip of the scope appeared through the left main bronchus), user device preference and volunteer's impression on the ease of use (VAS: 0mm-extremely difficult, 100mm-extremely easy). The volunteers were asked to do the task twice with each scope. Two members of the research team independently counted the number of tip surface collisions (a complete red out on the screen) three times from each of the video recordings. We used SPSS v16 to analyse the data.

Results

The median (IQR) number of years of anaesthetic experience of the volunteers was 9 (5-15) years. The main findings of the study are presented in the table.

Table: Values are mean (SD), proportion (%) as appropriate. (*n* = 75)

	Olympus	Ambu	Diff [95% CI]	P-value
Completion time; s				
1st attempt	53 (23)	63 (31)	10 [3 to 17]	0.008
2nd attempt	41 (19)	48 (23)	6 [2 to 11]	0.010
Tip collisions				
1st attempt	2.5 (1.8)	2.7 (1.9)	0.2 [-0.4 to 0.7]	0.56
2nd attempt	2.6 (1.8)	2.6 (2.0)	0.0 [-0.4 to 0.5]	0.89
Ease of use	77 (14)	65 (18)	-12 [-7 to -17]	<0.001
VAS; mm				
Preference	57 (76%)	18 (24%)		<0.001

Discussion

This study found a significant difference in the time to task completion between the Ambu and Olympus scopes. However, there was no difference in the number of tip surface collisions between the two scopes. It is debatable which of the two outcomes is more relevant clinically. The participants found the Olympus significantly easier to use and preferred this device to the Ambu scope: they stated the familiarity and ease of manoeuvring the tip of the scope as their reason for this. Clinical studies are needed to further evaluate the place of the Ambu scope in the management of difficult airway.

References

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