New ultrathin videoprobe for peripheral pulmonary lesion

Taton Olivier, Rodríguez Tebar Ana, Bondue Benjamin, Leduc D.

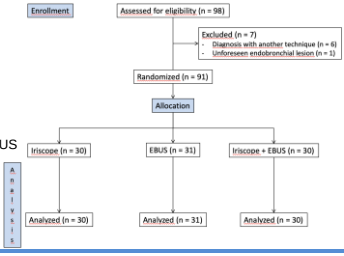
Department of Pneumology, Hôpital Erasme, Université libre de Bruxelles (ULB), Brussels, Belgium.

Introduction

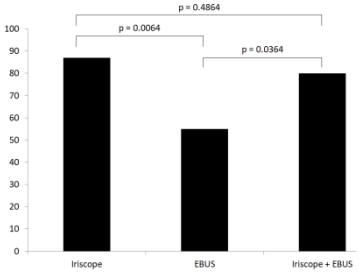
- Iriscope, an ultra-thin video-endoscopic probe of 1.3 mm, was developed to be inserted in the working channel of the bronchoscope to achieve a direct view of peripheral lung nodules unreachable by standard videobronchoscopes.
- Aims of this study : - evaluate the efficiency of Iriscope to visualize peripheral lung lesions compared to radial endobronchial ultrasonography (R-EBUS)
  - evaluate the added value of combining those 2 techniques to visualize peripheral lung lesions.

Methods

- Monocentric prospective study
- Peripheral lung lesions ranging from 20 to 50 mm
- Randomized into 3 groups: - bronchoscopy guided by Iriscope
  - bronchoscopy guided by R-EBUS
  - bronchoscopy guided by both Iriscope and R-EBUS
- Fluoroscopy was used in each group
- All biopsies were performed by forceps



Results



- The results suggest a better diagnostic yield of the Iriscope compared to R-EBUS. However, there were 2 times more lesions > 40mm in the Iriscope group and lesions were seen in only 2/3 of the cases. We would rather suggest a non inferiority of the Iriscope group compared to R-EBUS.
- By combining Iriscope and R-EBUS, the diagnostic yield of bronchoscopy increased in peripheral lung lesion with a diameter less than 50 mm.
- High sensitivity, specificity, PPV and NPV in the Iriscope and Iriscope + EBUS groups.

Limitations :

- No guide sheath used
- Low diagnostic yield of R-EBUS group

Table 1. Baseline characteristics of the three groups

	Iriscope	EBUS	Iriscope + EBUS	Total	p
n	30	31	30	91	/
Sex, M/F	13/17	14/17	19/11	46/45	0.8238
Age, mean +/- SD	62 +/- 11	64 +/- 12	64 +/- 15	64 +/- 13	0.7591
Lesion size, mean +/- SD	34.3 +/- 11.7	30.6 +/- 12.2	31.8 +/- 10.2	32.2 +/- 11.3	0.2120
Distribution of lesion size, n (%)					
≤ 20 mm	7 (23)	5 (16)	6 (20)	18 (20)	0.2064
20 - 30 mm	6 (20)	13 (42)	7 (23)	26 (29)	0.1418
> 30 - 40 mm	5 (17)	7 (23)	10 (34)	22 (24)	0.1881
> 40 mm	12 (40)	6 (19)	7 (23)	25 (27)	0.3201
Malignant lesion, n (%)	17 (57)	21 (68)	21 (70)	59 (65)	0.3278
Benign lesion, n (%)	13 (43)	10 (32)	9 (30)	32 (35)	0.2549

Table 3. Diagnostic yield by size and visualized lesion

	Iriscope	EBUS	Iriscope + EBUS	p
Yield by lesion size				
≤ 20 mm	57	40	67	0.5743
20 - 30 mm	100	54	86	0.9323
> 30 - 40 mm	80	71	70	0.9803
> 40 mm	100	50	100	0.7607
Yield for visualized lesion				
Visualized	100*	52#	80‡	0.0203
Non visualized	60	67	0	/
Yield for malignant disease				
Sensitivity	15/17 (92)	14/21 (67)	19/21 (90)	0.04671
Specificity	10/13 (77)	7/10 (70)	8/9 (89)	0.8799
PPV	15/18 (83)	14/17 (82)	19/20 (95)	0.2891
NPV	10/12 (83)	7/14 (50)	8/10 (80)	0.03513

*: Visualized lesion by Iriscope = 20/30 (67%), #: visualized lesion by EBUS = 25/31 (81%), ‡: visualized lesion by Iriscope or EBUS = 30/30 (100%). Abbreviations: EBUS: endobronchial ultrasonography, PPV: positive predictive value, NPV: negative predictive value.

Conclusions

- This study suggest a non-inferiority in the diagnostic yield of Iriscope compared to R-EBUS
- Multimodality diagnosis by combining Iriscope and R-EBUS increase the diagnostic yield compared to R-EBUS alone.

Conflicts of interest

Lys Medical (Waterloo, Belgium) developed and provided Iriscope. Olivier Taton, Benjamin Bondue, and Dimitri Leduc received consultancy fee and have stock options in Lys Medical society. The remaining author have nothing to declare.