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PD-L1 expression in non-small cell lung cancer according to specimen type; a retrospective study of over 2,000 cases

Background:

Assessing expression of programmed-death ligand-1 (PD-L1) on tumour cell membranes by immunochemistry is an important complementary or companion diagnostic test to guide the use of immune modulating drugs in the treatment of non-small cell lung cancer (NSCLC). It is generally assumed that expression of PD-L1 is the same irrespective of the type of specimen being assessed, but this this does not seem to have been formally investigated in a large series of specimens obtained by a range of sampling methods. Any such variation might have important practical implications when using PD-L1 expression levels to guide management.

Method:

We retrospectively compared the level of PD-L1 expression categorised as <1, 1-49 or ≥50% in 2,016 consecutive specimens of NSCLC assessed in our laboratory divided according to specimen type (bronchial washings and brushings, aspirates, tissue biopsy, resection). Adequacy (≥100 viable tumour cells) and tumour type were recorded also.

Results:

	N	%	PD-L1 TPS: <1% (%)	1-49% (%)	≥50% (%)	Inadequate (%)
Total	2016	100	32	30	31	7
Specimen Type						
Biopsies	1241	62	31	32	31	7
Aspirates	694	34	34	26	32	8
Resections	61	3	43	23	34	0
Washings and brushings	20	1	40	30	15	15
Morphology						
Adenocarcinoma	1132	56	33	28	31	8
Squamous carcinoma	695	34	31	34	29	5
Adenosquamous carcinoma	13	<1	23	23	38	15
NSCLC-NOS	161	8	30	24	36	10
Other	15	<1	47	7	47	0

Discussion:

There was excellent consistency of PD-L1 expression levels across three of the four different specimen types, the only notable difference being in the relatively small group of bronchial washings and brushings. These were also more often inadequate than were other types of specimen. This is an important and reassuring observation, since any variation attributable to merely how a tumour is

sampled would have serious implications when relying on this information to inform management. It is gratifying also that ’cytology’ specimens were equivalent to ‘histology’ specimens in terms of both consistency of PD-L1 expression and adequacy.