9.6 Bronchoalveolar lavage is a safe and effective sampling modality for the diagnosis of bronchial carcinoma

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Objectives: Bronchial carcinoma is the commonest lethal cancer in Hong Kong and patients often present in advanced stages rendering curative surgery impossible. Although bronchoscopy is a standard and effective means of diagnosing bronchial carcinoma, there is little data comparing the diagnostic yields of bronchoalveolar lavage (BAL), endobronchial biopsy (BX) and brushing (BR) which are the frequently used modalities of sampling. We have conducted a prospective study to evaluate the diagnostic yield of these sampling modalities in 100 cases of clinically proven cases of bronchial carcinoma.

Methods: Routine BAL, BX and BR were performed wherever possible in that order by one operator. The parameters analyzed include: age, sex bronchoscopic findings, BAL, BX, BR, radiological findings, histological type, and TNM staging.

Results: Altogether 100 patients (26F; mean age 62 yrs) were recruited. Bronchoscopy was normal in 10 patients, 5 of whose BAL showed malignant cells and 2 suspicious cells.

% of cases	CC	SC	NC	ND
BAL	62.2	24.4	13.4	0
BX	46.3	2.4	14.6	36.6
BR	26.8	9.8	6.1	57.3

Table. Diagnostic yield by above sampling methods in study group (CC=cancer cells, SC=suspicious cells, NC=non-cancerous, and ND =not done)

Diagnostic yield was 86.6, 48.7, and 36.6% for BAL, biopsy and brushing respectively. The commonest cell type was adenocarcinoma (47.6%). TNM staging revealed: stage IV 62.2% and IIIB 22.0%. The highest overall yield rate for malignant and suspicious cells was BAL when the entire patient group was considered, as biopsy and brushing could not be performed in 36.6 and 57.3% of cases respectively.

Conclusion: We conclude that BAL is a highly sensitive and effective mode of bronchoscopic sampling even in the absence of bronchoscopically visible tumour. Our findings should help clinicians in the diagnosis of this common maligancy.

9.7 Water clearance studies in two siblings with Gitelman syndrome

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Case control study: The study group consisted of index patient and her brother. The former was admitted because of tetany associated with persistent hypokalaemia, hypomagnesiaemia, and hyocalciuria and the latter was asymptomatic and found to have hypokalameia and hypocalcuria. Three medical students volunteered as control were of comparable age to the study group.

Clearance study: after overnight fast each subject received an oral water loading of 20ml/kg of body weight. Each voided urine was replaced orally by equivalent amount of distilled water until the end of the study. When urine osmolarity reached stable and minimal levels, three 15-min clearance were performed as basal clearance. Furosemide 40mg ivi bolus was then injected and three additional 10 min clearance were performed. One week later all subject were readmitted for thiazide test with water loading by 500 ml of distilled water followed by additional of 150 ml every hour until the end of the test. After two 30 min basal urine collection 50 mg thiazide was administered orally. Six additional urine samples were collected at 30 min interval. Blood samples were taken simultaneously.

Table 1 CH20 = maximal free water clearance, FACL = fractional Chloride reabsorption = (CH20/CH20 + C cl, chloride clearance), FEcl % = fractional excretion of chloride

	control 1	control 2	control 3	patient 1	patient 2
CH20 ml/min	18.81	16.744	17.9	6.605	6.296
Facl %	0.93	0.939	0.94	0 7642	0.7589
FEc1%	1.33	0.653	0.8167	1.67	1.986

Table 2 Thiazide Test: FE Na (fractional excretion of sodium before / after 50 mg thiazide p.o.)

	control 1	control 2	control 3	patient 1	patient 2
pre	1.72	1.355	2.05	1.38	1.27
post	3.56	5.12	5.32	0.88	1.32
u Mg mmol /1 pre	0.45	0.35	0.53	0.915	1.205
u Mg mmol / I post	0.62	0.61	0.615	0.735	1.065

Diagnosis of Gitelman syndrome was suspected based on persistent hypokalaemia, chronic metabolic alkalosis, normal blood pressure and hypocalciuria. It was concluded from table 1, that patient and her brother (study group) had impaired free water generation upon maximal water diuresis and the distal tubules reabsorption of solute (chloride) was impaired as compared with controls. Both groups responsed to loop acting diuretic, though of different degrees. Thiazide test clearly distinguished the groups with postive increment of FENa in the control while practically no response in the study group. This is consistent with reports non-functional mutation in thiazide-sensitive Na-C1 co-transporter among families with Gitelman syndrome. In this case controls study we reported the first Gitelman syndrome of two siblings in a Chinese family. They are associated with distinct distal tubular defect. Table 2 also suggested that we can use thiazide diuretic to reduce urinary magnesium in (Gitelman syndrome. Molecular genetic study is required to confirm the mutation in the family.