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How to define a cut-off value of tumour markers in haemodialysis patients?

Sir,

Biological tumour markers in haemodialyzed patients suffer from a high false positive rate, particularly CEA, C19-9 and CA 125. We conducted a study in haemodialysis patients without diagnosed malignancy to evaluate if a threshold value, defined by the 95th percentile of this cohort, could be proposed for these markers in this population.

A total of 105 dosages of each marker were done on 75 patients (immunometric assay, Immulite 2000, DPC). For very high values, markers were monitored at least twice and major causes of elevated level were checked. Twenty patients with normal or high values undertook a second sample to study dosage variability.

In 75 patients, the mean value of CEA, CA 125 and CA 19-9 was equal respectively to 4.8 ± 3.9 ng/mL, 25 ± 51 ng/mL and 47 ± 122 U/mL (Table 1). The false positive rate of each marker was concordant with the literature: CEA 34%, CA 125 33% and CA 19-9 22% (Tables 2–4). The 95th percentile of each marker was equal to CEA 12.7 ng/mL, CA 125 119 ng/mL and CA 19-9 294 U/mL. The very high level of the 95th percentile of CA 125 and CA 19-9 does not permit us to define a threshold value. Some very high levels of CA 125 were associated with fluid overload and lessened with the decrease of the dry weight of the patients. The 95th percentile of CEA stands in common values known to be frequent in patients with non-malignant causes of elevated level of this marker. A CEA cut-off value around 13 ng/mL in haemodialysis patients could be proposed using immunometric assay.

Conflict of interest statement. None declared.

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Table 1. Results of the tumour markers in a cohort of 77 haemodialysis patients on 105 dosages

	CEA (ng/mL)	CA125 (ng/mL)	CA199 (U/mL)
Mean	4.7	50.2	27.4
Standard deviation	3.9	120.2	49.9
Range	0.8–21	<1–722	<2.5–389
% False positive rate	34%	33%	22%
Median	3.6	11.3	8.66
95th percentiles	12.7	119	294
Reference values in healthy population	<5	<21	<33

Table 2. CEA in haemodialysis patients in the recent literature

HD	*n*	Dosage	Reference cut-off	CEA mean (ng/mL)	CEA false-positive rate
Filella, *Int J Biol Markers*, 1990 [1]	36	Abbott, IRMA	3.5 ng/mL	5.05 ± 5.02	47%
Eskiocak, *Nephrol Dial Transplant*, 1995 [2]	32	IRMA		6.03 ± 0.45	
Arican, *Transplant Proc*, 1999 [3]	50	Abbott, IRMA		5.87 ± 11.1	
Zeferos, *Nephron* 1991 [4]	23	IRMA		5.45 ± 0.9	
Walz, *Am J Nephrol*, 1988 [5]	93	Abbott, IRMA	5	3.93	
Odagiri, *Am J Nephrol*, 1991 [6]	144	Dinabot, RIA	2.5	2	25.7%
Polenakovic, *Int J Artif Organs*, 1997 [7]	62	Cobas, EIA		4.06	41%
Arik, *Intern Urol Nephrol*, 1996 [8]	35	Abbott, IRMA		2.6 ± 0.3	
Nomura, *Oncol Rep*, 1998 [9]	73	Eiken, IRMA	2.4	3.4 ± 2.4	

Table 3. CA 125 in haemodialysis patients in the literature

HD	*n*	Dosage	CA 125 mean ± SD U/mL	CA 125 range	CA 125, false positive rate
Filella, *Int J Biol Markers*, 1990 [1]	36	Abbott, IRMA	18.5 ± 11.9 median 15	<6–55	8%
Arican, *Transplant Proc*, 1999 [3]	50	Abbott, IRMA	22.82 ± 24.5		
Zeferos, *Nephron* 1991 [4]	23	IRMA	16.4 ± 3.5		
Walz, *Am J Nephrol*, 1988 [5]	93	Abbott, IRMA			
Odagiri, *Am J Nephrol*, 1991 [6]	144	Dinabot, RIA	15.3		7.6%
Polenakovic, *Int J Artif Organs,* 1997 [7]	62	Cobas, EIA	18.4	0.8–56.4	13.1%
Arik, *Intern Urol Nephrol*, 1996 [8]	35	Abbott, IRMA	15 ± 1.9		
Menzin, *Gynecol Oncol*, 1995 [10]	25	IRMA Centrocor	14.2 ± 12	5.8–50.5	8%

Table 4. CA 19-9 in haemodialysis patients in the literature

HD	*n*	Dosage	Reference cut-off	CA 19,9 Mean ± SD U/mL	CA 19-9, range	CA19-9 False-positive rate
Filella, *Int J Biol Markers*, 1990 [1]	36	Sorin, IRMA	37 U/mL	18.4 ± 12.6 median 14	7–54	6%
Zeferos, *Nephron* 1991 [4]	23	IRMA		14.9		
Odagiri, *Am J Nephrol*, 1991 [6]	144	Centocor	37 U/mL	17.4		6.30%
Polenakovic, *Int J Artif Organs*, 1997 [7]	62	Cobas, EIA	24 U/mL	83	0–400	73%
Arik, *Intern Urol Nephrol*, 1996 [8]	35	Abbott, EIA		78.4 ± 16.7		

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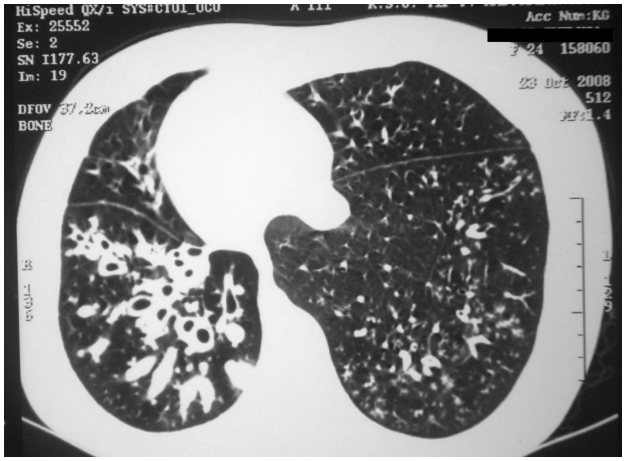

Fig. 1. Bronchiectasis and dextrocardia in thorax CT.

Kartagener's syndrome and polycystic kidney disease

Sir,

Kartagener's syndrome (KS) is a clinical variant of primary ciliary dyskinesia (PCD) involving situs inversus associated with chronic airway infections [1]. Ciliopathy has now become recognized as a multisystem disease, of which PCD is an important subgroup. Other known ciliopathies include Bardet–Biedl syndrome, polycystic kidney and liver disease, nephronophthisis, Alstrom syndrome, Meckel–Gruber syndrome and some forms of retinal degeneration [2,3].

We report a patient with KS and polycystic kidney disease, presenting with severe renal failure.

A 25-year-old woman who presented with fever, weakness, nausea, cough, dyspnoea, poor general condition and respiratory distress was admitted to our hospital. The patient was diagnosed 15 years previously with KS.

On physical examination, blood pressure was 120/80 mmHg, heart rate was 117 beats/min and respiratory rate was 22 breaths/min. Heart sounds were distant and deep on