7. EDTA contamination vs renal impairment

Ward	Surgical ICU	D.O.B/Age	17/04/1994
Consultant			

Potassium: 6.1 H mmol/L [3.5 – 5.1]

No diagnosis on request form, unable to get hold of clinician.

Authorised by Dr TA Gcingca on 27/11/2019 at 08:37

Sodium	137	mmol/L	136 - 145

Authorised by Dr TA Gcingca on 27/11/2019 at 08:37

Potassium	6.1 H	mmol/L	3.5 - 5.1

Authorised by Instrument on 27/11/2019 at 06:11

Chloride	106	mmol/L	98 - 107

Authorised by Dr TA Gcingca on 27/11/2019 at 08:37

Urea	19.7 H	mmol/L	2.1 - 7.1

Authorised by Instrument on 27/11/2019 at 06:11

Creatinine	198 H	umol/L	64 - 104
eGFR (MDRD formula)	38	mL/min/1.73 m²	

MDRD-derived estimation of GFR may significantly underestimate true GFR in patients with GFR > 60 mL/min/1.73m^2. It may also be unreliable in the case of: age <18 years or >70 years; pregnancy; serious co-morbid conditions; acute renal failure; extremes of body habitus/unusual diet; gross oedema. The MDRD-eGFR used here does not employ an ethnic factor for race.

Authorised by Dr TA Gcingca on 27/11/2019 at 08:37

Calcium	1.17 L	mmol/L	2.15 - 2.50

Authorised by Dr TA Gcingca on 27/11/2019 at 08:37

Magnesium	0.97	mmol/L	0.63 - 1.05

Authorised by Instrument on 27/11/2019 at 06:11

Inorganic phosphate	1.46 H	mmol/L	0.78 - 1.42

Authorised by Instrument on 27/11/2019 at 06:11

Indices in serum:

Haemoglobin index	Not detected
Bilirubin index	Trace
Lipaemia index	Not detected

Authorised by Instrument on 27/11/2019 at 05:44

White Cell Count	10.17	x 10^9/L	3.92 - 10.40
Red Cell Count	3.32 L	x 10^{12}/L	4.50 - 5.50
Haemoglobin	9.8 L	g/dL	13.0 - 17.0
Haematocrit	0.274 L	L/L	0.400 - 0.500
MCV	82.5 L	fL	83.1 - 101.6
MCH	29.5	pg	27.8 - 34.8
MCHC	35.8 H	g/dL	33.0 - 35.0
Red Cell Distribution Width	15.2	%	12.1 - 16.3
Platelet Count	116 L	x 10^9/L	171 - 388

Potassium ethylenediaminetetraacetic acid (EDTA) is a sample tube anticoagulant used for many laboratory analyses. Gross potassium EDTA contamination of blood samples is easily recognised by marked hyperkalaemia and hypocalcaemia. Subtle contamination is a relatively common, often unrecognised erroneous cause of spurious hyperkalaemia. In the case illustrated, it would be difficult to confidently exclude EDTA contamination based on these results alone. There is renal impairment which may explain the hyperkalaemia. The increased phosphate coupled with the renal impairment would also be an argument for the hypocalcaemia present.

In this instance, comparison with previous results was useful. The results are most likely due to renal impairment. As the patient had been admitted to the ward for a week, it was useful to be able to compare previous results. The gradual decline in renal function helped to explain the biochemical findings. As the samples were drawn of different days by different persons, the likelihood of EDTA contamination on all the days is relatively slim.

However, it is important to be cognisant that mild EDTA contamination may cause subtle shifts in results that may have negative consequences for the patient if erroneously acted on.