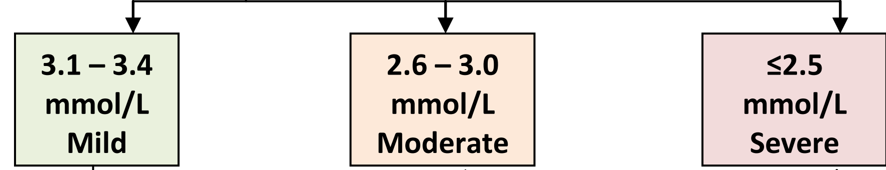
Author: Dr Hannah Delany, Clinical Chemistry, NGH, Version 2; 24/09/15 Sheffield Teaching Hospitals NSH Foundation Trust, Laboratory Medicine Procedure LMGPR005

Original Approved by: Dr Hannah Delany September 2015. Amended by Barnsley 2018

HYPOKALAEMIA IN ADULTS (K <3.5 mmol/L)

A new K result <2.5 mmol/L will be phoned to the GP surgery or out of hours .



3.1 – 3.4 mmol/L Mild

2.6 – 3.0 mmol/L Moderate

≤2.5 mmol/L Severe

High risk patient?
Elderly, on digoxin; heart failure; IHD; LVH; arrhythmia AND/OR Patient clinically unwell.
Symptoms of hypokalaemia?

YES → **Seek urgent specialist advice**

NO ↓

Consider causes of hypokalaemia
See BOX 1

BOX 1
Some causes of hypokalaemia

- **Spurious**

Storage of samples at >37°
Very high WCC

- **Magnesium depletion** [+]
- **Drugs**

Aminoglycosides, cisplatin,
Amphotericin B [+]
Beta2-agonists eg bronchodilators
Carbenoxolone [+]
Citalopram
Chloroquine intoxication
Decongestants-Xanthines eg theophylline, caffeine
Diuretics [+]
Glucocorticoids [+]
Insulin overdose
Laxatives and enemas
Mineralocorticoids [+]
Penicillin in large IV doses [+]
Verapamil intoxication

- **Poor nutritional status**

Alcoholism
Anorexia nervosa
Chronic D or V
Malabsorption
Severe malnutrition,

- **Mineralocorticoid excess**

Conn's [+]
Crushing's [+]
Excessive liquorice ingestion [+]
([+] denotes renal K loss)

Exclude hypomagnesaemia as a cause
When possible, Mg will be added on to the sample by the duty biochemist

Compare with previous results if available
Review rate of change in K^+
Significant changes are:

- >0.5 mmol/L decrease
- Rapid change over days

≤ 2.5 mmol/L

- Repeat measurement urgently
- if inconsistent with previous result Seek urgent specialist advice; Referral of patients to A&E even if asymptomatic is normally indicated [$]
- Treatment with intravenous potassium may be required

[$] if there's a valid reason for not referring, perform ECG

Advice for Barnsley patients is available via contacting Biochemistry on 01226 432772 or 435749

If Cause unclear: consider sending random urine to lab for K/creatinine ratio
A ratio .2.5mmol/mmol suggests cause is renal potassium loss (see BOX 1) Unexplained renal loss, with or without hypertension, should prompt Endocrinology referral

3.1 – 3.4 mmol/L

- Values og 3.3 -3.4 mmol/L in low risk patients may be of little clinical significance
- Treat/remove underlying cause where possible
- Consider oral replacement: Repeat potassium within 5 days

2.6 – 3.0 mmol/L

- Repeat measurement urgently if inconsistent with previous result
- Perform ECG
- Consider referral to A&E if hypokalaemia is rapidly worsening, if ECG changes or cardiac symptoms
- Otherwise, consider oral replacement with regular potassium monitoring (weekly or more often depending on severity)