Intravenous Insulin Prescription and Fluid Protocol
FOR DIABETIC KETO-ACIDOSIS (DKA) and HYPEROSMOLAR HYPERGLYCAEMIC STATE (HHS)

For use for ALL ADULT patients receiving Variable Rate Intravenous Insulin Infusion (VRIII) for the management of DKA and HHS
NOT FOR USE IN CHILDREN
NEVER use an IV syringe to draw up insulin
ALWAYS draw up insulin using an insulin syringe
ALWAYS continue subcutaneous basal insulin

Dosing Algorithm

<table>
<thead>
<tr>
<th>CBG Levels (mmol/L)</th>
<th>Infusion Rate (Units/hr = ml/hr)</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt;4</td>
<td>STOP INSULIN (recheck CBG in 10 minutes)</td>
</tr>
<tr>
<td>4.0 - 6.0</td>
<td>0.2</td>
</tr>
<tr>
<td>6.1 - 6.6</td>
<td>0.5</td>
</tr>
<tr>
<td>6.7 - 8.2</td>
<td>1</td>
</tr>
<tr>
<td>8.3 - 9.9</td>
<td>1.5</td>
</tr>
<tr>
<td>10 - 11.6</td>
<td>2</td>
</tr>
<tr>
<td>11.7 - 13.2</td>
<td>3</td>
</tr>
<tr>
<td>13.3 - 14.9</td>
<td>5</td>
</tr>
<tr>
<td>15 - 16.6</td>
<td>6</td>
</tr>
<tr>
<td>16.7 - 18.2</td>
<td>7</td>
</tr>
<tr>
<td>18.3 - 19.9</td>
<td>8</td>
</tr>
<tr>
<td>&gt;20</td>
<td>6</td>
</tr>
</tbody>
</table>

Algorithm Guide

For use with ALL ADULT patients for the management of Diabetic Keto-Acidosis (DKA) and Hyperosmolar Hyperglycaemic State (HHS)

Algorithm 1
Starting point for Hyperosmolar Hyperglycaemic State (HHS);
To commence ONLY if significant ketonaemia (>1) or ketonuria (>++)

Algorithm 2
Starting point for Diabetic Keto-Acidosis (DKA)
HHS not controlled on Algorithm 1

Algorithm 3
For patients not controlled Algorithm 2
No patient starts here without medical review

Algorithm 4
For patients not controlled on Algorithm 3
No patient starts here

Patients not achieving control with these algorithms need medical review

Conquest: Bleep 2681 or 2969
EDGH: Bleep 0964 or 0867
Out of Hours: Contact the team responsible for the patient

Target CBG Levels 4-12 mmol/l
Check CBG every hour whilst on IV insulin
Move Up if the CBG is >12 mmol/l and has not reduced by at least 3mmol/L in 1 hour
Move Down when CBG is <4 mmol/l

SYRINGE PREPARATION

Drug (approved name) | Dose | Volume | Route | Doctor’s Signature | Date
---------------------|------|--------|-------|--------------------|------
HUMAN ACTRAPID INSULIN | 50 UNITS | Made up to 50ml with SODIUM CHLORIDE 0.9% (1 UNIT per ml) | IV |

INTRAVENOUS FLUID MANAGEMENT
Prescribe Intravenous fluids on the Intravenous Fluid Prescription Chart (see over)
CAUTION: DKA: Slower in age, youth heart disease; HHS: Heart failure and elderly

Saline Regime (Sodium Chloride 0.9%) with KCl as per guidance below until fluid replete
If CBG >12 mmol/l
1 litre over one hour
1 L over 2 hrs, 1 L over 2 hrs, 1 L over 2 hrs
1 litre over 8 hours in the next 24 hours + losses

Add Potassium Chloride (KCl) as per guidance below EXCEPT for the first bag
(consistent with ESHT guidelines on potassium solutions)
If K+ >6.0, or if K+ >5.5 & no urine yet, NONE until insulin under way; re-check at 1-2h
If K+ 4.0 to 5.9 (or 5.4 if no urine), 20 mmol KCl per litre (0.15%)
If K+ <4, 40 mmol KCl per litre (0.30%) (absolute maximum rate 1 litre/h, controller essential)

When eating and drinking consider restarting original insulin regimen
Maintain IV infusion for 30 minutes after re-starting original insulin regime—IV insulin has a 5 minute half life

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<table>
<thead>
<tr>
<th>Date</th>
<th>Solution</th>
<th>Volume</th>
<th>Additives and dose</th>
<th>Rate</th>
<th>Duration</th>
<th>Route and line</th>
<th>Prescriber signature</th>
<th>Given by</th>
<th>2nd Check</th>
<th>Time started</th>
<th>Time stopped</th>
<th>Pharm &amp; Supply</th>
<th>Notes</th>
</tr>
</thead>
</table>

For information on dilutions, infusions rates, compatibilities and monitoring parameters, consult the Injectable Medicines Guide or contact Medicines Information (13) 3785 / (14) 7067.