ICP based approach to DKA management improves performance

Mohamed Madkour , P Rao Balakrishna.

Introduction:
An integrated care pathway (ICP) proforma was introduced in Manchester Royal Infirmary based on modified JBDS guidelines. The aim was to guide the frontline clinicians in managing Diabetic ketoacidosis safely.

Background
Several audits since 2008 have highlighted the inadequacies in the management of patients with DKA. Interventions since then by using written guidelines and education resulted in varying outcomes. An ICP was therefore introduced to standardise the management. Audits were done to check performance, and compared against previous similar audits (particularly, before the introduction of ICP Proforma).

Method
A data collection tool was created against standards set by AQA, and then was collected from patients admitted with DKA/Hypoglycaemia in the period between Nov 17-Feb 18, this was compared against similar audits, prior to the introduction of the ICP approach.

Standards
- Blood glucose monitoring within 30 minutes and hourly in first 24 hours
- IV insulin and Fluids, within 60 minutes, and remaining, meeting guidelines
- Review within 1 hour by senior medic
- HDU or ITU admissions
- Prescribing and administering quick acting carbohydrates within 15 minutes of low blood glucose detection
- Escalation of care if blood glucose remains low after 1 hour
- Medication review

Sample of DKA Integrated care pathway:

Results

<table>
<thead>
<tr>
<th>Authors</th>
<th>Delay in assessment &gt; 1 hr</th>
<th>Initial IV fluids - initiation time met guidelines</th>
<th>1st litre of iv fluids in 1st hr</th>
<th>2nd litre of iv fluids in 2 hours</th>
<th>3rd litre of fluid in 2 hours</th>
<th>Addition of dextrose 10% IV when CBG falls - standards met</th>
</tr>
</thead>
<tbody>
<tr>
<td>N Long &amp; M Rutter</td>
<td>20%</td>
<td>0%</td>
<td>70%</td>
<td>100%</td>
<td>100%</td>
<td>50%</td>
</tr>
<tr>
<td>N Moschian &amp; P Rao Balakrishna</td>
<td>20%</td>
<td>20%</td>
<td>83%</td>
<td>100%</td>
<td>100%</td>
<td>0%</td>
</tr>
<tr>
<td>K. Arunachalam, E Saunders, A Safran, P Rao Balakrishna</td>
<td>0%</td>
<td>0%</td>
<td>100%</td>
<td>100%</td>
<td>100%</td>
<td>0%</td>
</tr>
<tr>
<td>M Madkour, P Rao Balakrishna</td>
<td>0%</td>
<td>0%</td>
<td>100%</td>
<td>100%</td>
<td>100%</td>
<td>90%</td>
</tr>
</tbody>
</table>

Conclusion:
A printed ICP provides timely prompts for front line clinicians helping them manage DKA as per trust guidelines and has proven to improve performance in DKA, when it comes to prompt treatment, senior reviews, IV fluid administration, electrolyte balance, and reducing incidence of ITU admissions.