Comparison of PECARN, CATCH, and CHALICE Rules for Children with Minor Head Injuries

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Study Design

VARIABLES FOR: PECARN, CHALICE, and CATCH were recorded

Inclusion Criteria

Presented within 24 hours of minor head injury and a GCS ≥ 13

Patients were < 18 years old and there was concern for a traumatic brain injury

Exclusion Criteria

Bleeding disorders and anticoagulant therapy

Brain Tumors or Ventricular Shunts

Design

Single Center Prospective Cohort Study

Variables for PECARN, CHALICE, and CATCH were recorded

Physician estimation and physician practice were recorded for each patient

Results

Of the 1,009 children included in the study, 21 clinically important* traumatic brain injuries were identified

### Diagnostic Accuracy of Clinical Decision Rules and Physician Judgement

<table>
<thead>
<tr>
<th></th>
<th>Sensitivity (%)</th>
<th>Specificity (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physician Estimation</td>
<td>95</td>
<td>68</td>
</tr>
<tr>
<td>Physician Practice</td>
<td>100</td>
<td>50</td>
</tr>
<tr>
<td>PECARN</td>
<td>100</td>
<td>62</td>
</tr>
<tr>
<td>CHALICE</td>
<td>84</td>
<td>85</td>
</tr>
<tr>
<td>CATCH</td>
<td>91</td>
<td>44</td>
</tr>
</tbody>
</table>

*Defined as death from traumatic brain injury, a need for neurosurgery, intubation lasting greater than 24 hours for traumatic brain injury, or hospital admission greater than 2 nights for traumatic brain injury.

Bottom Line

PECARN was the only clinical decision rule that had 100% sensitivity in detecting clinically important traumatic brain injuries in pediatric patients with minor head injuries.