Use of an early warning score to evaluate clinical deterioration in pediatric oncology patients

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Background

The early warning scales assign a score to clinical observations and generate a value that allows identifying patients at risk of deterioration. It has been shown that these signs are present and are detectable hours before a high-risk situation.

Objectives

Evaluate the use of the PEWS (Pediatric Early Warning Score) score as a marker of early clinical deterioration in pediatric oncology patients that require evaluation by the intensive care team.

Material & methods

128 events were reviewed, corresponding to 71 patients with cancer, that required evaluation by the pediatric intensive care unit (PICU) team between Dec 2013-Oct 2015. A PEWS score was assigned retrospectively to each one of the events before the evaluation by the PICU team. A score of greater than 4 was classified as critical. The events were classified: PICU consult, medical response team activation and code team activation.

Results

Critical PEWS relationship with transfer to ICU				
ICU Consults (n=182)	Critical PEWS	142 (78%)	ICU transfer	79 (55.6%)
			No transfer	63 (44.3%)
	Non-critical PEWS	40 (21.9%)	ICU transfer	13 (32%)
			No transfer	27 (67.5%)

Before evaluation by the ICU, 78% of the patients had a critical PEWS. Of the 182 events, 79 were transferred to the ICU with a critical PEWS before the event. Of the remaining 90 events that did not require transfer to the ICU, 65 patients (72.2%) require an intervention to improve their critical condition.

Critical PEWS, ICU transfers, ICU bedside interventions
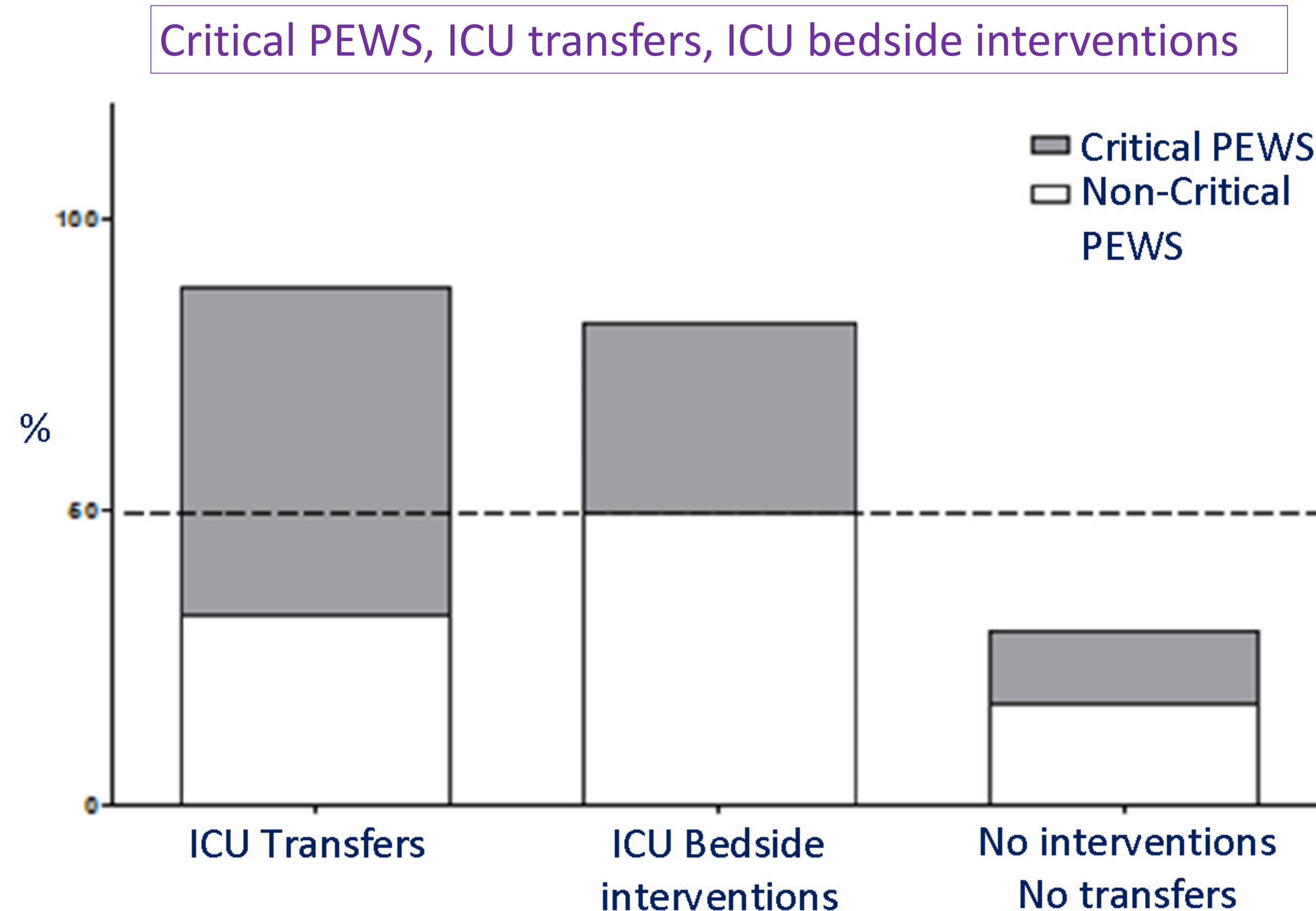
Frequency of detection of patients who had critical PEWS prior to assessment by the ICU.		
Hours before ICU consult	# of records with critical PEWS	%
10	12	6.59
9	14	7.69
8	15	8.24
7	6	3.30
6	10	5.49
5	3	1.65
4	9	4.95
3	14	7.69
2	5	2.75
1	17	9.34
0	37	20.33
Total	142	78.02

Conclusions

The results suggest that the use of an early warning score would allow the objective identification of patients at risk for deterioration.

The use of an early warning score allows the staff to start treatment opportunely in order to prevent further clinical deterioration.

Additional studies are required to confirm these findings with the implementation of the scale and its correlation with the patient's prognosis.

Future Work

- The next stage of this project will be the implementation of PEWS in our hospital.

- We will compare this results with the outcomes after a successful implementation.

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