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EDITORIAL

Head injury in children: the clinical paradigm☆

Trauma craneano en niños: el paradigma clínico

In the era of evidence-based medicine and with the advent and introduction of clinical practice guidelines (CPG), one would expect a radical change in behaviors that develop in the patient-physician-medical health institution relationship and during each event with medical insurers (coordinator of health services). In 2006 the Ministry of Health proposed the "Program of Action for the Development of Clinical Practice Guidelines" as an element of leadership in health care. Its purpose was to establish a national reference to promote making clinical and managerial decision recommendations based on the best evidence available. This favors the effectiveness, safety and quality of care and contributes to the wellbeing of persons and communities, which are the central objectives and the rationale for health services.[1] The value gained with the use of CPG should be highlighted, which is to reduce uncertainty and improve the quality of decisions so that their daily application would be more desirable. However, in most cases, medical decisions continue to be defined by empirical medical knowledge (practical), by demands imposed by the patient or family (expectations of care), by preventive medicine related to lawsuits (defensive) as well as due to resources, institutions, policies and other factors that contribute to modify the process of care.[2] The "dark side" of the use of the guidelines is that of attempting to limit daily clinical practice, usually for health institutions or insurance companies, in an attempt to optimize the cost-benefit of the medical procedure. One of the principal events for visits to the hospital emergency room is head injury. Most of these are mild and, in conformity with internationally accepted standards, should only be evaluated in first-level care clinics.[3-5]

Children, due to their condition of dependency and care by adults, actually have limited exposure to cranial trauma. Furthermore, it is known that due to their physical characteristics such as elasticity of tissues and rapid systemic response, if they suffer a traumatic injury, this will be less severe compared to adults. However, modern life, which includes more exposure to injuries related to moving vehicles and reduced parental care due to work obligations, has caused a rise in the frequency of childhood trauma during the last 10-15 years. Over 95% of head injuries are mild and <3% will be severe.[3]

Statistically it is known that from 2% and up to 8% of patients with mild head trauma will have one of the parameters that justifies performing computed tomography (CT) and, therefore, will require evaluation in a second- or third-level care center. Of these, only a third, at most, will present an intracranial injury that will necessitate admission for a few hours, although only 1/31,000 will have an intracranial hematoma that will lead to surgery, if there is no apparent skull fracture. This is compared to 1/80 patients if imaging studies demonstrate skull fracture.[3,5-8]

Multiple groups have analyzed the need for different types of scrutiny to be carried out with a high level of evidence. It is clear that clinical parameters remain the spearhead to optimize patient care and to reduce excessive costs related to studies, not due to poor technology but to low prevalence of compilations, as cited previously, that will accumulate "useless" studies to detect intracranial pathology.

Some articles highlight clinical value to define medical management, which invites us to understand that monitoring for a few hours in the emergency room is sufficient to rule out, almost entirely, an injury that aggravates the patient's condition[6]. In another article, with the use of clinical data, pediatric patients were grouped and positive predictive values of intracranial hematoma were able to be obtained, which would allow for more accurately selecting those patients who have a definite indication for performing CT.[8] The latter was preceded by another study involving

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both adult and pediatric populations to determine whether CT scan is required in all cases. It was concluded that, with the application of certain rules (again using clinical data), the number of studies could be reduced.[9]

One factor that has not been analyzed was whether the presence of the treating physician could modify behavior. According to data obtained by the study published in this issue of *Boletin Médico Hospital Infantil de México*,[10] although there is a tendency for fewer requests from patients assessed by their treating physician, the answer would be no. The reason for this, from a particular point of view, is that until now CPG are not applied and, therefore, nothing is clearly qualitatively changed. Note that overall in 40% of children from that institution, CT scan is performed in contrast to the 3-5% recommended overall by national and international guidelines.

In private pediatric practice there are two factors that justify doing a CT: repeated vomiting and headache. In the meta-analysis by Dunning et al.[8] for obtaining positive predictive values of intracranial lesions in children, it was determined that none of these clinical data indicators allow for prediction of a positive outcome. This logically leads to the question: why are so many scans requested due to the presence of vomiting and headache? It would be necessary to conduct a study to determine why the guidelines are not used and what other justification the physician may have for requesting such an expensive and economically unnecessary study.

The purpose of this editorial was to highlight the use of CPG as the best tools available today to enhance the quality of patient care and to base decisions on the use of technology on a premise that has been slowly and inexorably lost: *the use of the clinic*.

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