Hypermetabolism Correlated with Subsequent Stricture Formation in Esophageal Caustic Burn Injury in Children

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Our study aimed to explore prognostic factors using a severity score system including metabolic condition related to subsequent stricture formation aŌer esophageal caustic burn and assess the beneĴts or deĴcits of steroid use for these patients.

Materials and Methods

We retrospectively investigated the children admitted to Chang Gung Children's Hospital for corrosive ingestion between July 1993 and June 2013. TXe study was approved by Institutional Review Board (IRB No. 104-6861B) of Chang Gung Memorial Hospital. Patients' demographic information, nature of the caustic agent, medical records with timing of medical access, vital signs, clinical manifestations, diagnostic procedures with endoscopic Ĵndings, medical management, subsequent complications, and following Ĵnal outcome were reviewed. Laboratory studies were evaluated, including the peripheral leukocyte count and blood electrolytes, liver and renal functions, and sugar level at admission. Delayed management was deĴned as initial treatment more than 6 h aŌer caustic ingestion. TXe severity of esophageal injury on upper gastrointestinal endoscopy was classiĴed as follows: grade 0, negative Ĵndings; grade 1, injury limited to erythema and edema; grade 2, ulceration with necrotic tissue and white plaque; and grade 3,

Steroid used (+/-)	10/4	20/23	0.105
Antibiotics used (+/-)	11/3	23/20	0.097
Agent ingested (Alkaline/Acid)	13/1	35/8	0.427
Grade of Injury (high/low)	14/0	23/20	0.001

Table 2: Risk Factors Associated with Esophageal Stricture Аҥer Corrosive Injury in Children.

Upper gastrointestinal endoscopy was performed in every patient within 48 h аҥer the event. Antibiotics and corticosteroids were used

Two patients Ẑnally accepted gastrostomy owing to inadequate eẌcacy for nutrition supplement under dilatation and another one operated for esophageal reconstruction due to multiple stricture sites with one esophageal perforation as complication of dilatation. Only 2 patients accepted short duration (less than 1 month) parenteral nutrition in the acute phase of injury. Sequentially, four patients (28.6%) had growth retardation and failure to thrive due to undernutrition Ẑnally with 3 of them retarded both body weight and height. None of these patients had gross developmental delay.

Score system and Hypermetabolism assessment in esophageal stricture patients

Focused on the hypermetabolic presentations of the 14 patients with stricture formation (Table 3), 13 (92.9%) manifested at least 1 of all the signs, and there were 12 (85.7%) with marked leukocytosis, 11 (78.6%) with hyperthermia, and 8 (57.1%) with hyperglycemia and the highest prevalence of marked leukocytosis. Eight (57.1%) patients presented all the 3 hypermetabolic signs, 10 (71.4%) presented at least 2 of 3 signs.

According to the assessment by our scoring system (Table 1), the positive prediction of stricture formation was: 3 of 4 patients (75%) scored 6, 6 of 10 patients (60%) scored 5 or higher, 11 of 20 patients (55%) scored 4 or higher, 14 of 29 patients (48%) scored 3 or higher, and 14 of 43 patients (33%) scored 2 or higher. HẌe negative prediction of stricture formation was: 42 of 53 (79%) patients scored less than 6, 39 of 47 (83%) patients scored less than 5, 34 of 37 (92%) patients scored less than 4 (Figure 1).

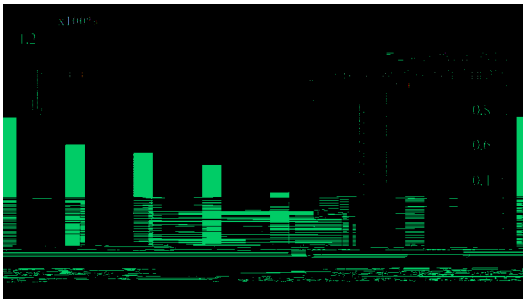

Figure 1: HẌe positive and and negative predictive values related to score accessment for stricture formation aнer esophageal corrosive

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