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EFFECTIVE TREATMENT METHODS OF CHEMICAL BURNS OF ESOPHAGUS IN CHILDREN

SUMMARY

The chemical burn of a gullet leads to cicatricial narrowing according to various authors from 3 to 20% and belongs to the category of the most serious complications which are negatively influencing psychology of children. Issues of rational tactics of treatment of cicatricial narrowing of a gullet are up to the end not resolved. Some children's surgeries at cicatricial narrowing recommend to use a tonkokishechny or tolstokishechny transplantant, and other authors hold the opinion on a stomach transposition because this method of correction is technical rather simple. In this article at 125 children the frequency of chemical agents, kliniko-diagnostic features and efficiency of a conservative and surgical method of treatment were studied. At a complex conservative method efficiency of treatment is reached at 113 (90 %) children. In 2 (1,6 %) cases in connection with a nekorregiruyemy total stenosis of a gullet was operation of a one-stage zagrudinny kolonoezofagoplastika with creation of an anti-reflux kologastroanastomoz is executed.

Key words: chemical agents, kolonoezofagoplastika, cicatricial stenosis of the esophagus, program bougienage.

To study the causes of chemical burns of the esophagus (CBE), children's age features, conditional indicators of conservative andsurgical treatment methods and comparative study of their results.

Research objectives:

1.To determine the age composition of children, to study thediversity of chemical agents and the diagnostic significance ofFEGDS in chemical burns of the esophagus.

2.Retrospective analysis of long-term results of conservative and operative treatment.

MaterialsandMethods. In order to achieve our goals, we analyzed the medical records of 125 children under the ages of 15 who received treatment on chemical burns of the esophagus and who were in the Almaty №1 "The center of children's emergency medical care" during 2014-2016 years.

During this period, of 125 children who had chemical burns of the esophagus 72 (57.8%) were boys, 53 (42.2%) were girls. Up to the age of one – 11 (8.54%), from 1 to 3 years of age - 89 (70, 91%), from 4 to 7 years of age – 20 (15, 85%), from 8 to 15 years – 5 (4, 70 %).

The time from having chemical burns of the esophagus to admission to the hospital: 54 (43.2%) children up to 3 hours, and 23 (18.4%) children up to 6 hours, 18 (14.4%) patients up to 12 hours, and 17 (13.6%) children from injuries up to 24 hours. After one day, the 9 (7.49%) and 4 (3.48%) children 1-3 months after hospitalized again with the esophageal stenosis after chemical burns of esophagus and with alimentary hypotrophy.

The main reasons of burns of the esophagus: acetic acid – 52 (41%) and crystals of potassium permanganate – 25 (20%). In the third place is the household cleaning agents for cleaning pipes, particularly the "KROT" solution – 19 (15%). Other chemical solutions 3% – hydrogen peroxide,5% – toilet and hand washing cleaners: "Domestos", "Comet", "Ushastyinyian".

Children with chemical burns of the esophagus have following symptoms: a lot of saliva, swallowing disorders (dysphagia), vomiting, and change in voice, lip burn marks, an increase in the temperature of the body, pus and swelling of the mucous membranes of the mouth, in 4 children with respiratory damage observed suffocation.

Of 125 children, 20 (20%) of them had fever, poisoning,disruption of water and electrolyte and acid-alkaline stability and other exatoxic shock, as

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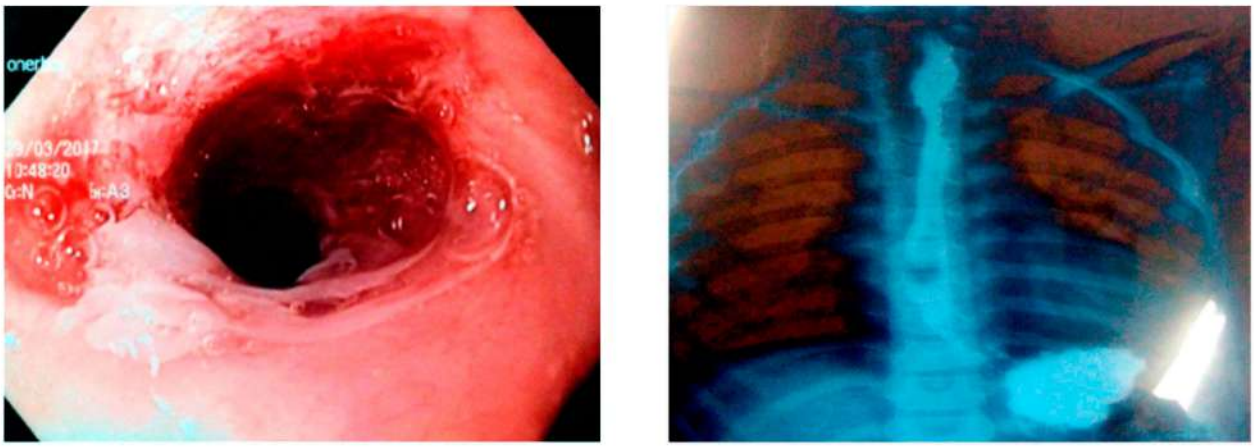
a result they hadan intensive care in the intensive care department.

After admission to the hospital, depending on the types of chemicals and first injury, time treatment is carried out and the first aid starts from gastric washing. The composition of the gastric wash solution was directly related to the chemical solution: if the cause of burn was alkaline water, mixed not boiled milk with water, protein water is used;if potassium permanganate – 0.5-1% solution of ascorbic acid intravenously, 50-100 ml of ascorbic acid 1 tablespoon every half an hour. In the case of acid burns,activated carbon inside was assigned. In addition, in order tohavean effective analgesia (promedol 1% 0.1 ml/age, 4 times 3-5 days, from 2 years of age - morphine 0,003-0,01 g / 1 time use),in anti-inflammatory process a wide range antibiotics were used (benzyl penicillin 50000-100000 U / kg, after 1 year of age, 500,000 units/day), detoxification treatment; if damaged mucous layer of the stomach and esophagus-almagel andkyzylmaiwere used and from the first days in hospital, in order to prevent esophagus stenosis treatments using medicine such as aloe were used.

Diagnostic fibroesophagogastroscopy (FEGDS) was used after 2-3 days from injury. This is because, depending on the results of the first treatment during this time the esophageal swelling begins to heal, thus when using FEGDS the risk of injury of mucous membrane of the esophagus is reduced. When using FEGDS – 59 children (47, 21%) had only esophageal burn, 66% (52,79) patients had esophagus and stomach double burn condition.

In 64 (50,78%) children, endoscopic examination of I-II staged chemical burns of the esophagus revealed: mucus and underground layer of mucus on the degree of redness, swelling, in some places pus sheeting and quick injury of the mucous membrane. The underlying causes (etiology) in I-II staged chemical burns of the esophagus were potassium marganca powder(manganese), dishwasher and washing solutions, 3% hydrogen peroxide, toilet cleaning "Domestos", "Comet" solutions.



Patient E, 4 years 5 months - esophagus and stomach 2-3 staged chemical (battery solution) burns, complicated by subsequent cicatricial strictures of the esophagus.

When remaining 61 (49,13%) patients had FEGDS,they had II-III staged esophagus and stomach chemical burns. It was seen as swelling of the mucous layer, purulent sheeting cover (fibrin), hemorrhage ofmucous membrane, small blood vessel clotting (thrombosis), mucus and mucosal injury. The major etiologic factors of II-III staged chemical burns of the esophagus were acetic acid, battery solution, "Krot", "Chistatel" and stationery glue.

Results:As a result of the above systematic drug treatment (conservative),all 64 (100%) children who had I-II staged esophageal burnsand 44 (66,6%) of 61 patients who had II-III staged esophageal burns improved, and freely ate meal; in order to control FEGDS was used and revealed that mucous membrane of esophagus and stomach was healing up or recovered. Thus, systematic conservative treatment within 7-21 days in 108 (86, 4%) of 125 patients were successful.

In 17 (27,8%) children with II-III staged chemical burns of the esophagus were signs of esophageal stenosis at the end of second week and third week. In order to effectively treat these

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complications, patients had special scheduled conductor (bougie) 1-2 times for 3-4 weeks. For children under 3 years of age, first 2-3 bougiewas done by general endotracheal anesthesia. Anesthesia during generalbougiewas chosen depending on the age of the child and the degree of stenosis of the esophagus.

In 7 (41.1 %) of 17 (13.6 %) children with cicatricialstrictures of the esophagus, the special scheduled conductor (bougie) gave a positive result, the conductivity of the esophagus is fully developed. These patients were discharged in satisfactory condition. However,in the first months endoscopic examination was conducted in order to prevent strictures of the esophagus. Patients inclined to stenosis of the esophagus had bougie once per week for 2-3 month, and then twice a week for 2-3 months, then once per month for 5-6 months. Bougie results were assessedby FEGDS and esophagus X-ray, which meansesophagography, as well as assessed by the quality of the food absorption.

The rest of the patients with cicatricialstrictures of the esophagus which need a long time to bougie and who had issues with eating food - 10 patients (58.9 %), for the purpose of normal food supply and using Bairov method in order to retrograde bougie strictures of esophagus, we used Cader method of gastrostoma which has antireflux mechanism. As a result of special scheduled conductor (bougie), 3 (2.4 %) patients' conductivity was restored.In this group of children theduration of treatment was 1.5 years.

Because the scheduled special conductor had negative results and cicatricialstrictures of esophagus were very long, in 7 (56 %) patients in this group polyvinylchloride stent (intubation) was used.Thetreatment was effective in 3 children with the stent. Another four patients had re-installed stent because of the primary results of intubation. In 4 (3.2 %) cases,because of a long esophagus intubation thecicatricialstrictures of esophagus remained, as a result the scheduled bougie was continued. Finally, because of an effective treatment, in 1 (0.8%) patient the conductivity of the esophagus has been restored.

Of 125 children who had treatment from chemical burns of the esophagus, only 3 (2.4%) treated with surgery. Because of the conservative treatment was ineffective, 2 (1.6%) of the children with totalstenosis of esophagus had colonogastroesophagoplasty operation in order to prevent food from getting directly to esophagus. In the first days after the surgery in 1 child fistula was detected next to colonoesophagoanastamosis and treated withconservative method.

For the last 1 (0.8%) patients, using special scheduled conductor (bougie), cicatricialstrictures of the esophagus were restored, however because of the strictures in the pyloric part of the stomach as a result of chemical burn, using Ru method under the transverse colon gastroenteroanastomosis surgery was done. There were no complications after the surgery.

Conclusion

1. Chemical burn of the esophagus occurs from 1 to 3 years aged in 89 (71%) cases. The main causes (etiology) of chemical burn of the esophagus were acetic acid and crystals of potassium permanganate, 61% percent. There is no much difference in frequency of occurrence in I-II staged chemical burns and II-III staged chemical burns, 64 (50,78%) and 61 (49,13%)respectively. In 70 (52,79%) cases – esophagus and stomach double burn condition, 55 (47,21%) cases – esophagus burn condition.

2. Conservative treatment was successful in 113 (90%) children. There was apositive result of scheduled bougie and stent treatment, 14 (11.2%) of 17 children, in esophageal cicatricialstrictures after chemical burn of the esophagus.

3. In uncorrectable total stenosis of the esophagus, in 2 (1,6%) children operation of one-stage retrosternal colono-esophagoplasty with the creation of an antirefluxcologastroanastomosis was carried out. In 1 (0.8%) patient, double cicatricialstrictures in the pyloric part of the stomach, Ru method under the transverse colon gastroenteroanastomosis operation was done.

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АННОТАЦИЯ

На сегодняшний день при химических ожогах пищевода широко применяются консервативные и оперативные методы лечения. При I-II степени ожогов пищевода лечение проводится консервативным методом, при III степени применяются бужирование или интубация пищевода, при глубогих ожогах пищевода с осложнениями – оперативные методы лечения. Очень важно своевременно определить тактику лечения, потому что, несмотря на эффективность консервативного лечения, химический ожог пищевода приводит к рубцовому сужению, по данным различных авторов, от 3 до 20 %. Все это относится к разряду наиболее серьезных осложнений, которые в течение длительного времени негативно влияют на психологию детей. В настояще время не до конца решен вопрос рациональной тактики лечения рубцового сужения пищевода. Используя методы коррекции для пластики пищевода при рубцовом сужении, некоторые детские хирургии рекомендуют применять тонкокишечный или толстокишечный трансплатат.

Ключевые слова: химические агенты, колоноэзофагопластика.

ТҮЙІН

Балалардың өңешіндегі химиялық күю күнделікті өмірде әртүрлі химиялық заттарды пайдалану салдарынан 1 жастан 3 жасқа дейінгі балаларда жүре пайда болған аурулар арасында бірінші орында тұр. Өңештің зақымдану дәрежесін дәл анықтау қиын, фиброэзофагогастродуоденоскопия өңештің химиялық күйігін анықтаудың оңтайлы әдісі болып табылады. Жекелеген авторлар ФЭГДС ерте 3-4 тәулікте жүргізу емдеудің алдағы тәсілін анықтайды: диагнозды тоқтатуға не болмаса күйік дәрежесін және таралуын анықтауға мүмкіндік береді. Өңештің химиялық күйігі әртүрлі авторлардың мәліметтері бойынша 3 %-дан 20 %-ға дейін тыртықтық тарылуға әкеліп тсоғады және балалардың психологиясына кері әсер ететін барынша күрделі асқынулар қатарына жатады. Тыртықтық тарылуды емдеудің отайлы тәсілдері мәселелері әлі де шешілмей келеді. Кейбір балалар хирургтары тыртықтық тарылу кезінде аш ішек немесе тоқ ішек трансплантантын пайдалануды ұсынады, ал басқа авторлар техникалық тұрғыда мұндай түзету әдісі қарапайым болғандықтан, асқазан транспозициясы туралы пікірді қолдайды.Бұл мақалада 125 балада химиялық агенттердің жиілігі, клиникалық-диагностикалық ерекшеліктері мен консервативті және хирургиялық емдеу әдістерінің тиімділігі зерттелген. Кешенді консервативті емдеу әдісі кезінде тиімділік 113 (90 %) балада көрінген. Өңештің түзетуге келмейтін толық стенозы 2 (1,6 %) жағдайларында антирефлюксті кологастроанастомоз құру арқылы бірден кеуде артында колоноэзофагопластика отасы жасалды.

Түйінді сөздер: химиялық агенттер, колоноэзофагопластика, cicatricial stenosis of the esophagus, program bougienage.