

救援医学英语

Rescue Medical English

主 编 / 呼文亮 崔学军



人民军医出版社

PEOPLE'S MILITARY MEDICAL PRESS

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内 容 提 要

本书针对灾害医学救援工作的客观需要,以英文介绍了灾害医学救治的相关知识和技术方法。按外科、内科各系统伤病,灾害常见专科、特殊伤病,灾害常见传染病,麻醉及灾害救援中的护理等分章编排。各章包括基础知识、基本技能、院前救治、院后救治及合理用药等,并附常用英汉词汇。本书内容丰富,阐述简明,实用性强,主要供开设本课程的医学院校使用,亦可供相关医学科技人员学习参考。

前 言

近年来世界各地自然灾害、恐怖事件和突发公共卫生事件频发,每一次灾害都会造成很大的人员伤亡,救援医学也应运而生。在威胁全人类的灾难面前,每个国家都必须相互支持、相互协作,只有各国政府、救援机构和组织及整个国际社会相互支援、共同应对,才能战胜各种灾害,最大限度地减小损失,使灾害不再是灾难,也就是说救援医学正在国际化。学习救援医学英语有助于了解国际上其他国家对于灾害发生时各种疾病的处理技术,同时也为将来的国际救援任务及国际救援医学交流打下语言基础。

本书主要涵盖各种灾害造成的常见外科、内科、专科各种疾病及灾害常见传染病、灾害救援护理、灾害特殊疾病。对于各种疾病主要从它们的定义、病理、体格检查、院前救治、院后救治及用药等方面进行阐述。全书结构清晰,文字简明,配有丰富清晰的图片和注释,直观易学。

本书选材主要来自互联网,也有部分选自医学杂志和教科书上,我们按照救援医学专业学生学习的需要对内容进行了编辑和注释,难易度和内容相关度适合于救援医学本科水平。由于每篇文章均有较详细的注释,学生可以课内、课外阅读相结合的方式逐步提高英文水平,开阔视野。本书旨在为培养国际化的医疗救援队提供支持,可作为救援医学专业本科教材,也可作为专业化医疗救援队的培训教材使用,亦适合于从事相关科研、教学人员和医学生参考。

本书的编写,得到武警医学院领导和机关的大力支持,特此表示感谢。限于编者水平,书中如有不当之处,欢迎读者指正。

编 者

2011年5月

目 录

第 1 章 常见外科疾病救治	(1)
第一节 颅脑外伤	(1)
一、Epidural Hematoma 硬脑膜外血肿	(1)
1. Background	(1)
2. Pathophysiology	(1)
3. Physical Examination	(2)
4. Treatment	(2)
5. Further Inpatient Care	(4)
6. Transfer	(4)
7. Deterrence/Prevention	(4)
8. Complications	(4)
9. Prognosis	(4)
二、Brain Herniation 脑疝	(6)
1. Introduction	(6)
2. Causes	(6)
3. Symptoms	(6)
4. Exams and Tests	(6)
5. Treatment	(7)
6. Prognosis	(7)
7. Possible Complications	(7)
三、Skull Fracture 颅骨损伤	(7)
1. Introduction	(7)
2. Anatomy of Fracture	(8)
3. Treatment	(8)
4. Follow-up	(10)
第二节 脊柱骨折	(11)
Compression Fractures of the Spine 脊柱压缩骨折	(11)
1. Introduction	(11)
2. Symptoms	(12)
3. Diagnosis	(12)
4. Treatment	(12)
第三节 胸部创伤	(13)
一、Pneumothorax, Tension and Traumatic 压力气胸	(13)
1. Introduction	(13)

2. Pathophysiology	(13)
3. Physical Examination	(14)
4. Causes	(15)
5. Treatment	(16)
6. Consultations	(18)
7. Medication	(18)
8. Follow-up	(18)
9. Complications	(19)
10. Prognosis	(19)
二、Pneumothorax 气胸	(20)
1. Introduction	(20)
2. Pathophysiology	(20)
3. Physical Examination	(22)
4. Causes	(23)
5. Treatment	(25)
6. Medication	(30)
7. Follow-up	(31)
8. Complications	(32)
9. Prognosis	(32)
三、Penetrating Chest Trauma 穿透性气胸	(33)
1. Introduction	(33)
2. Etiology	(33)
3. Pathophysiology	(34)
4. Presentation	(35)
5. Relevant Anatomy	(36)
6. Treatment	(36)
7. Complications	(42)
8. Outcome and Prognosis	(44)
第四节 腹部损伤	(45)
Abdominal Trauma, Blunt 腹部钝伤	(45)
1. Introduction	(45)
2. Pathophysiology	(45)
3. Physical Examination	(46)
4. Diagnostic Procedures	(47)
5. Treatment	(49)
6. Follow-up	(51)
第五节 泌尿系统损伤	(52)
一、Fracture, Pelvic 骨盆骨折	(52)
1. Introduction	(52)

2. Pathophysiology	(52)
3. Physical Examination	(53)
4. Causes	(54)
5. Treatment	(54)
6. Medication	(55)
7. Follow-up	(57)
8. Transfer	(57)
9. Deterrence/Prevention	(57)
10. Complications	(57)
二、Bladder Trauma 膀胱损伤	(58)
1. Introduction	(58)
2. Pathophysiology	(58)
3. Relevant Anatomy	(60)
4. Treatment	(61)
5. Complications	(63)
6. Outcome and Prognosis	(63)
三、Urethral Trauma 尿道外伤	(64)
1. Introduction	(64)
2. Pathophysiology	(64)
3. Relevant Anatomy	(65)
4. Diagnostic Procedures	(65)
5. Treatment	(65)
6. Complications	(68)
第六节 四肢骨折	(69)
Ankle Injury, Soft Tissue 踝关节损伤	(69)
1. Background	(69)
2. Pathophysiology	(69)
3. Physical Examination	(70)
4. Treatment	(71)
5. Medication	(72)
6. Complications	(74)
7. Prognosis	(74)
第七节 Face Fracture 面部骨折	(75)
1. Introduction	(75)
2. Pathophysiology	(75)
3. Physical Examination	(77)
4. Treatment	(78)
5. Medication	(79)
6. Follow-up	(83)

7. Transfer	(84)
8. Deterrence/Prevention	(84)
9. Complications	(84)
第2章 灾害常见专科疾病	(86)
第一节 妇产科	(86)
Pregnancy Trauma 妊娠创伤	(86)
1. Introduction	(86)
2. Pathophysiology	(86)
3. Physical Examination	(87)
4. Causes	(88)
5. Procedures	(88)
6. Treatment	(89)
7. Consultations	(91)
8. Medication	(91)
9. Follow-up	(91)
10. Transfer	(91)
11. Complications	(92)
12. Prognosis	(92)
第二节 耳鼻喉科	(93)
一、Outer Ear Injury 外耳损伤	(93)
二、Laryngitis 喉炎	(94)
1. Introduction	(94)
2. Pathophysiology	(94)
3. Physical Examination	(95)
4. Causes	(95)
5. Treatment	(96)
6. Medication	(97)
7. Prognosis	(98)
三、Fractures of the Nose 鼻骨折	(99)
1. Introduction	(99)
2. Diagnosis	(99)
3. Treatment	(99)
第三节 皮肤科	(100)
一、Impetigo 脓疱病	(100)
1. Introduction	(100)
2. Pathophysiology	(100)
3. Physical Examination	(100)
4. Causes	(101)
5. Treatment	(101)

6. Medication	(102)
7. Complications	(103)
8. Prognosis	(104)
二、Phytophotodermatitis 植物光皮炎	(105)
1. Introduction	(105)
2. Pathophysiology	(105)
3. Physical Examination	(106)
4. Causes	(107)
5. Treatment	(107)
6. Medication	(107)
第3章 灾害特殊疾病救治	(111)
第一节 Burns 烧伤	(111)
1. Introduction	(111)
2. Classification	(111)
3. Symptoms and Diagnosis	(112)
4. Complications	(113)
5. Treatment	(113)
6. Prognosis	(115)
第二节 Toxicity, Carbon Monoxide 一氧化碳中毒	(117)
1. Introduction	(117)
2. Pathophysiology	(118)
3. Physical Examination	(119)
4. Causes	(120)
5. Treatment	(120)
6. Prognosis	(122)
第三节 Crush Syndrome 挤压综合征	(123)
1. Pathophysiology	(123)
2. Diagnosis	(123)
3. Treatment	(123)
第4章 常见内科疾病救治	(125)
第一节 Shock 休克	(125)
1. Etiology and Classification	(125)
2. Symptoms and Signs	(126)
3. Diagnosis	(127)
4. Prognosis and Treatment	(127)
第二节 Coma 昏迷	(130)
1. Causes	(130)
2. Symptoms	(131)
3. Diagnosis	(131)

4. Classification	(132)
5. Prognosis	(132)
第三节 Acute Upper Respiratory Tract Infection 急性上呼吸道感染	(134)
1. Definitions	(134)
2. Etiology	(134)
3. Epidemiology	(135)
4. Signs and Symptoms	(135)
5. Treatment	(135)
第四节 Aspiration Pneumonia 吸入性肺炎	(137)
1. Causes	(137)
2. Symptoms	(138)
3. Diagnosis	(138)
4. Exams and Tests	(139)
5. Treatment	(139)
6. Prognosis	(139)
7. Complications	(139)
8. Prevention	(140)
第五节 Acute Respiratory Distress Syndrome 急性呼吸窘迫综合征	(140)
1. Patient Presentation and Diagnosis	(141)
2. Pathophysiology	(142)
3. Treatment	(143)
4. Complications	(144)
5. Epidemiology	(145)
第六节 冠心病	(146)
一、Angina Pectoris 心绞痛	(146)
1. Classification	(147)
2. Signs and Symptoms	(147)
3. Cause	(148)
4. Pathophysiology	(149)
5. Diagnosis	(149)
6. Treatment	(150)
7. Epidemiology	(151)
二、Myocardial Infarction 心肌梗死	(152)
1. Classification	(152)
2. Signs and Symptoms	(152)
3. Causes	(153)
4. Diagnosis	(154)
5. Prevention	(155)
6. Management	(156)

7. Complications	(157)
8. Prognosis	(157)
第七节 Acute Heart Failure 急性心力衰竭	(158)
1. Causes	(159)
2. Symptoms	(159)
3. Risk Factors	(160)
4. Complications	(160)
5. Tests and Diagnosis	(160)
6. Treatments and Drugs	(161)
第八节 脑血管急症	(162)
一、Cerebral Hemorrhage 脑出血	(162)
1. Symptoms	(163)
2. Causes	(163)
3. Diagnosis	(164)
4. Treatment	(165)
5. Prognosis	(165)
二、Subarachnoid Hemorrhage 蛛网膜下腔出血	(166)
1. Signs and Symptoms	(167)
2. Causes	(168)
3. Diagnosis	(168)
4. Treatment	(169)
5. Epidemiology	(170)
第5章 灾害常见传染病救治	(172)
第一节 呼吸道传染病	(172)
一、Influenza (flu)流行性感冒	(172)
1. Symptoms	(172)
2. Causes	(173)
3. Treatment	(173)
4. Prevention	(174)
5. Complication	(174)
6. H1N1	(175)
二、Measles 麻疹	(175)
1. Symptoms	(176)
2. Complications	(176)
3. Diagnosis	(177)
4. Treatment	(177)
5. Prognosis	(177)
6. Prevention	(178)
7. Vaccine Side Effects	(179)

第二节 消化道传染病	(179)
一、Viral Hepatitis 病毒性肝炎	(179)
1. Introduction	(179)
2. Types	(180)
3. Symptoms and Signs	(181)
4. Prognosis	(182)
5. Diagnosis	(182)
6. Treatment	(184)
7. Prevention	(185)
二、Cholera 霍乱	(186)
1. Signs and Symptoms	(186)
2. Cause	(186)
3. Pathophysiology	(187)
4. Diagnosis	(188)
5. Prevention	(189)
6. Treatment	(190)
7. Possible Complications	(190)
8. Prognosis	(190)
第三节 虫媒及血液传播疾病	(191)
一、Malaria 疟疾	(191)
1. Signs and Symptoms	(192)
2. Causes	(193)
3. Diagnosis	(194)
4. Prevention	(196)
5. Treatment	(197)
6. Prognosis	(198)
7. Possible Complications	(198)
二、Dengue Fever 登革热	(199)
1. Overview	(199)
2. Signs and Symptoms	(199)
3. Cause	(200)
4. Diagnosis	(200)
5. Treatment	(201)
6. Prevention	(201)
7. Epidemiology	(201)
8. Prognosis	(202)
9. Complications	(202)
三、Japanese Encephalitis 乙型脑炎	(202)
1. Definition	(202)

2. Causes and Symptoms	(203)
3. Diagnosis	(203)
4. Treatment	(203)
5. Prognosis	(204)
6. Prevention	(204)
第四节 接触性传播传染病	(204)
一、Bubonic Plague 鼠疫	(204)
1. Signs and Symptoms	(205)
2. Pathophysiology	(205)
3. Diagnosis	(205)
4. Treatment	(207)
二、Anthrax 炭疽	(207)
1. Cause	(208)
2. Diagnosis	(211)
3. Treatment	(211)
第6章 麻醉	(214)
Anesthesia 麻醉	(214)
1. Types of Anesthesia	(214)
2. Anesthetic Agents	(215)
3. Anesthetic Equipment	(215)
4. Anesthetic Monitoring	(215)
5. Anesthesia Record	(216)
6. Anesthesia Information Management System(AIMS)	(216)
7. Potential Risks and Complications	(216)
第7章 灾害救援中的护理	(218)
Airway Management;Noninvasive Intervention 无创气道护理介入	(218)
1. Assessment	(218)
2. Implementation	(218)

第 1 章 常见外科疾病救治

第一节 颅脑外伤

一、Epidural Hematoma 硬脑膜外血肿

1. Background

Epidural hematoma (EDH) is a traumatic accumulation of blood between the inner table of the skull and the stripped-off dural membrane. The inciting event often is a focused blow to the head, such as that produced by a hammer or baseball bat. In 85-95% of patients, this type of trauma results in an overlying fracture of the skull. Blood vessels in close proximity to the fracture are the sources of the hemorrhage in the formation of an epidural hematoma. Because the underlying brain has usually been minimally injured, prognosis is excellent if treated aggressively. Outcome from surgical decompression and repair is related directly to patient's preoperative neurologic condition.

2. Pathophysiology

Approximately 70-80% of epidural hematomas are located in the temporoparietal region where skull fractures cross the path of the middle meningeal artery or its dural branches (Figure 1. 1). Frontal and occipital epidural hematomas each constitute about 10%, with the latter occasionally extending above and below the tentorium. Association of hematoma and skull fracture is less common in young children because of calvarial plasticity.

Right temporal epidural hematoma with midline shift. Patient should be taken immediately to the operating room for neurosurgery. This may require emergent transport to a trauma center or other facility with a neurosurgeon available.

EDH are usually arterial in origin but result from venous bleeding in one third of patients. Occasionally, torn venous sinus cause an epidural hematoma particularly in the parietal-occipital region or posterior fossa. These injuries tend to be smaller and associated with a more benign course. Usually, venous epidural hematomas only form with a depressed skull fracture, which strips the dura from the bone and, thus, creates a space for blood to accumulate. In certain patients, especially those with delayed presentations, venous

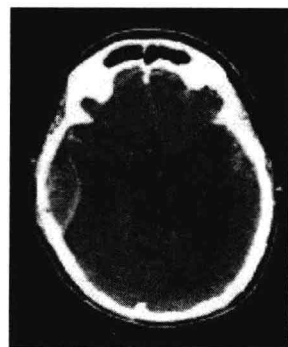


Figure 1. 1

epidural hematomas are treated nonsurgically.

Expanding high-volume epidural hematomas can produce a midline shift and subfalcine herniation of the brain. Compressed cerebral tissue can impinge on the third cranial nerve, resulting in ipsilateral pupillary dilation and contralateral hemiparesis or extensor motor response.

EDH are usually stable, attaining maximum size within minutes of injury. However, Borovich et al demonstrated progression of epidural hematoma in 9% of patients during the first 24 hours. Rebleeding or continuous oozing presumably causes this progression. Secondary epidural hematoma can occasionally run a more chronic course and is detected only days after injury.

3. Physical Examination

• Cushing response, consisting of the following, can indicate increased intracranial pressure (ICP):

- Hypertension; Bradycardia; Bradypnea.
- Level of consciousness may be decreased, with decreased or fluctuating GCS.
- Contusion, laceration, or bony step-off may be observed in the area of injury.
- Dilated, sluggish, or fixed pupil (s), bilateral or ipsilateral to injury, suggest increased ICP or herniation.
- Classic triad indicating transtentorial herniation consists of the following:
- Coma; Fixed and dilated pupil (s); Decerebrate posturing.
- Hemiplegia contralateral to injury with herniation may be observed.

4. Treatment

4.1 Prehospital Care

- Stabilize acute life-threatening conditions and initiate supportive therapy. Airway control and blood pressure support are the most important issues.
- Establish IV access, administer oxygen, and monitor.
- Administer IV crystalloids to maintain adequate blood pressure.
- Intubation, sedation, and neuromuscular blockade per protocol.
- There is some suggestion of increased mortality with prehospital intubation in retrospective reviews of trauma patients with moderate-to-severe head injury compared with patients intubated in the ED.
- Bag-valve-mask ventilation with good technique may be of more benefit to brain injured patients than prehospital intubation.

4.2 Emergency Department Care

- Establish IV access, administer oxygen, monitor, and administer IV crystalloids as necessary to maintain adequate blood pressure.
- Intubate using Rapid Sequence Induction (RSI), which generally includes premedica-

tion with lidocaine, a cerebroprotective sedating agent (EG, etomidate), and a neuromuscular blocking agent. Lidocaine may have limited effect in this situation, yet it carries virtually no risk. Premedication with fentanyl may also help blunt a rise in ICP. Intubate after a basic neurologic examination to facilitate oxygenation, protect the airway, and allow for hyperventilation as needed.

- Elevate head of the bed 30° after the spine is cleared, or use reverse Trendelenburg position to reduce ICP and increase venous drainage.

- Administer mannitol 0.25-1g/kg IV after consulting a neurosurgeon, if MAP is greater than 90mmHg with continued clinical signs of increased ICP. This reduces both ICP (by osmotically reducing brain edema) and blood viscosity, which increases cerebral blood flow and oxygen delivery. Fluids must be replaced and hypovolemia avoided.

- Hyperventilation to partial pressure of carbon dioxide (PCO_2) of 30-35mmHg treats incipient herniation or signs of increasing ICP; however, this is controversial. Be careful not to lower PCO_2 too far (<25 mmHg). Perform hyperventilation if clinical signs of increased ICP progress and are refractory to sedation, paralysis, osmotic diuretics, and if possible, cerebrospinal fluid (CSF) drainage. This procedure reduces ICP by hypocarbic vasoconstriction and reduces risks of hypoperfusion and death of injured cells.

- Phenytoin reduces the incidence of early posttraumatic seizures, although it does not affect late-onset seizures or the development of a persistent seizure disorder.

- Several treatment guidelines on various aspects of traumatic brain injury are available from the Brain Medicine Foundation.

4.3 Medication

Use RSI when intubating to minimize rises in ICP and catecholamine release. Etomidate, when used as RSI sedating agent, maintains blood pressure, lowers ICP and brain metabolism, and has rapid onset and brief duration. Thiopental is not recommended because of its predictable effect in lowering blood pressure, the leading cause of secondary brain injury. Mannitol osmotically reduces ICP and improves blood flow. Phenytoin provides prophylaxis against early posttraumatic seizure. Once the patient has received adequate fluids, pressors such as norepinephrine can be used to maintain $MAP > 90$ mmHg.

Osmotic diuretic

Osmotically reduces brain edema and ICP and reduces blood viscosity, improving cerebral blood flow and oxygen delivery. Prior to ICP monitoring, use only for signs of herniation or progressive neurological deterioration. Hypovolemia should be avoided by replacing fluids (urine monitoring with placement of a bladder catheter is essential). Intermittent boluses may be more effective than continuous infusion.

Mannitol (Osmitol)

Keeps serum osmolality <320 mOsm to prevent renal failure. Maintain euvolemia with adequate IV fluid replacement. Foley catheter is essential.

Adult