

First aid

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First aid

Simple techniques maintaining the life and limiting consequences of an acute life threatening condition

Technical first aid

- basic technical measures

Basic first aid

- by everybody
- basic management without special equipment till professionals come
- calling professional service
- transport in particular situations

Professional first aid

- by physicians and medical staff

Cardiopulmonary resuscitation CPR

Restoration of vital functions:

Heart function

Breathing

Brain function

Aim: maintaining of a minimal blood flow with oxygen in the brain

The brain has an aerobic metabolism with consumption of 20 % of blood oxygen/min

Due to complete arrest of the oxygen flow into the brain happens after 4 minutes:

- irreversible damage of brain cells
- irreversible damage of brain functions

There is no regeneration of neurons!

Mutual dependence:

In breathing arrest - in 2-3 min. cardiac arrest

In cardiac arrest - in 30-60 sec. breathing arrest

CPR

Free airways

Breathing

Chest compressions

Examination (25 sec)

Consciousness: speech, painful stimulation,
pupils

Breathing: chest movements
expirations air
cyanosis, pallor

Heart function:
puls in carotid artery
on the heart
on main arteries in children

CPR

A- air

B- breathing

C- circulation

D- drugs

E- ecg

F- defibrilation

Breathing disorder- apnoe

1. Obstruction of airway (blocked airway)
 - sinking of the tonque
 - oedema of airways
 - foreign body in airway
2. Cardiac arrest
3. Disorder of the brain, spinal cord, poisoning
shock, disorder of lungs, injury of the chest

Opening of airways

Cleaning of the mouth

Tilting of the head back

Lifting of the chin

Esmarch maneuver- 3 in one

Removal of foreign body:

By hand

Back blow

Heimlich maneuver

Breathing

Breathe in : breathe out = 1 : 2

Frequency 10- 12 breath/ min in adults

12- 20 breath/min in children

Technique

- mouth to mouth
- mouth to nose
- mouth to nose and mouth (small children)

Airway obstruction:

Back blow

Heimlich maneuver- abdominal thrusts

Coniotomy

Coniopuncture

Airway plastic tube

Intubation and ventilation

Cardiac arrest

Cardiac arrest- asystolia

Fibrilation of ventricles

Bradycardia below 30/min

Causes: myocardial infarction, shock,
pulmonary embolism, injury to the head
electric injuries, poisoning

Symptoms: no pulse, unconsciousness
no breathing, cyanosis,
mydriasis.

Recommendation of American Heart Association 2005

Chest compression

Compression to relief 1: 1

Compression: ventilation 30 : 2

Old technique:

Compression : ventilation 15:2 in children

CPR

1. person: continuous chest compression 100/min
without a break for breathing

2. persons: 10 breathes/min

Exchange of persons after two minutes

Check up of the pulse

Fibrillation of the ventricles

Compression of the chest

Breathe in

Defibrillation:

One shot biphasic 200 J
 monophasic 360 J

Sufficient CPR replaces only 30 % of normal brain perfusion

Time of CPR till achieving of vital functions
till medical care is available
till exhaustion of persons

In hospital 30 min

Outdoors 45 min

No CPR

Irreversible signs of the death

Condition non compatible with the life

Terminal cases of diseases

First aid is a moral duty of every person

The law

Not giving first aid in Czech republic

§ 207

- everybody- jail up to one year
- medical staff- jail up to two years
- car accident- jail up to three years