MEDICAL EMERGENCIES IN THE DENTAL OFFICE

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MAY BE MINOR CHANGES TO HANDOUT

UNLESS YOU ARE ON AN ORGAN TRANSPLANT LIST!

CELL PHONES/PAGERS/ETC. OFF/VIBRATE

MEDICAL EMERGENCIES

OVERVIEW:

MEDICAL EMERGENCIES CAN, AND DO, OCCUR IN DENTAL OFFICES

FRIGHTENING EXPERIENCE → CATASTROPHE

EFFECTIVE MANAGEMENT – AVOID IT!

MEDICAL EMERGENCIES

FREQUENCY:

SYNCOPE (FAINTING)	50.3%
MILD ALLERGY	8.4%
ANGINA PECTORIS	8.3%
POSTURAL HYPOTENSION	8.1%
SEIZURE	5.2%
ASTHMATIC ATTACK	4.5%
HYPERVENTILATION	4.3%
EPINEPHRINE REACTION	3.0%
HYPOGLYCEMIA	2.9%
CARDIAC ARREST	1.1%
ANAPHYLAXIS	1.0%
MYOCARDIAL INFARCTION	0.9%
L.A. OVERDOSE	0.7%

– usually due to LA

} rare

HALAMED JADA 1983

MEDICAL EMERGENCIES

WHEN DO THEY OCCUR?

IMMEDIATELY BEFORE TX	1.5%
DURING / AFTER LA	54.9%
DURING TREATMENT	22.0%
AFTER TREATMENT	15.2%
AFTER LEAVING OFFICE	5.5%

75% - STRESS & ANXIETY!!

MEDICAL EMERGENCIES

OUR OBLIGATIONS AS DOCTORS:

1. RECOGNIZE THE PROBLEM
2. ACTIVATE THE E.M.S.
3. KEEP THE VICTIM ALIVE
   - SPONTANEOUS RECOVERY
   - HELP ARRIVES TO TAKE OVER
   - TOO TIRED

ex. doing CPR by urself

MEDICAL EMERGENCIES

MANAGEMENT:

1. PREVENTION
2. PREPARATION
3. RECOGNITION
4. TREATMENT

MEDICAL EMERGENCIES

MANAGEMENT:

1. **PREVENTION**
2. PREPARATION
3. RECOGNITION
4. TREATMENT

PREVENTION

SIMPLE PREVENTION:

- DON'T TREAT STRANGERS!
- **MEDICAL HISTORY**
  - PAST / PRESENT MEDICAL CONDITIONS
  - PRESENT MEDICATIONS
  - ALLERGIES
- **EXAMINATION**
  - VITAL SIGNS BP, pulse, temp
  - H & N
- MEDICAL CONSULTATION
- STABLE DISEASE STATES

ex. hyperthyroidism
→ don't use LA (epi)

PREVENTION

GREATER RISK:

- SURGERY = STRESS endo, OS
- MORE MEDICATIONS USED
- LONGER APPOINTMENTS
- SITTING POSITION OS predisposes pt to heart conditions
- EXTREMES OF AGE
  - 6 y.o. - 65 y.o.
  - RELATIVELY UNHEALTHY PATIENTS ARE ALIVE, AMBULATORY, AND CAN SEEK CARE

not be to met LA

MEDICAL EMERGENCIES

MANAGEMENT:

1. PREVENTION
2. **PREPARATION**
3. RECOGNITION
4. TREATMENT

PREPARATION

C.E. Continuing education
B.L.S. basic life support
A.C.L.S. / P.A.L.S. pediatric advanced life support
OFFICE STAFF TRAINING
- ROLES
- ACTIVATE E.M.S. – DIAL 911

ACCESS TO HELP
- OTHER DENTIST / PHYSICIAN
- E.M.T.
- LOCAL HOSPITAL

(ACLS) advanced cardiac life support

PREPARATION

EQUIPMENT: CHECK PERIODICALLY
- A.E.D.

DRUGS – CHECK EXPIRATION DATES

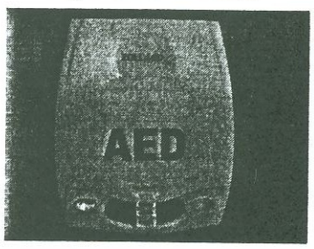
INJECTABLE DRUGS
- EPINEPHRINE 1:1,000
- HISTAMINE BLOCKER

NON-INJECTABLE DRUGS

OXYGEN	VASODILATOR
BRONCHODILATOR	ANTIHYPOGLYCEMIC
THROMBOLYTIC	STIMULANT
NITROUS OXIDE	

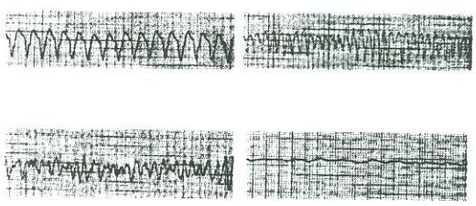
PREPARATION

EQUIPMENT: A.E.D.



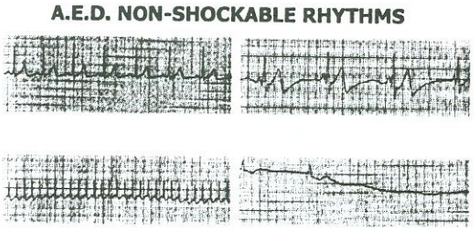
PREPARATION

A.E.D. SHOCKABLE RHYTHMS



PREPARATION

A.E.D. NON-SHOCKABLE RHYTHMS



PREPARATION

DRUGS: OXYGEN must be portable

E CYLINDER

NO CONTRAINDICATIONS
→ believe it was thought that you could not give it to ppl w/ emphysema

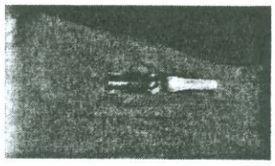
inject IM, sublingually

PREPARATION

DRUGS: EPINEPHRINE

1:1000 CONC.

ANAPHYLAXIS
allergies!



THERE IS NO ALLERGY TO EPINEPHRINE!
part of body

drug comes before ABC
→ DABC

PREPARATION

DRUGS: HISTAMINE BLOCKER

Benadryl
DIPHENHYDRAMINE
50 MG./ML.

MILD ALLERGY
ANAPHYLAXIS
2° drug

(both vasodilators)
*don't use it on ED meds

PREPARATION

DRUGS: BRONCHODILATOR

ALBUTEROL
VENTOLIN
PROVENTIL
BETA-2 AGONIST

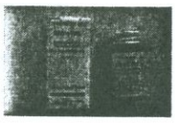
1-2 PUFFS
BRONCHOSPASM
ASTHMA

also can be used to treat someone having an allergic reaction to something in respiratory tract

PREPARATION

DRUGS: VASODILATOR (NITRATES)

Short ½ life
NITROGLYCERIN
SL TABS
0.3 – 0.4 MG.
ORAL SPRAY lasts longer
0.4 MG. / SPRAY



AMYL NITRITE
(yellow; inhaled)
ANGINA PECTORIS chest pain
PREHOSPITAL C.P.
CONTRAIND.: SBP< 90
VIAGRA ETC.

- for coronary artery disease
- take BP first don't use if systolic is < 90 — will ↓ BP by 8%

PREPARATION

DRUGS: THROMBOLYTIC AGENT

for M.I.
A.S.A (ASPIRIN)
160 - 325 MG.
~~CHEWED~~
most effective
A.M.I.
CONTRAINDICATION:
ALLERGY
ACTIVE GI BLEED
RECTAL ex. ulcers

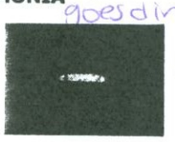
to bypass G.I.

PREPARATION

DRUGS: AMMONIA

for fainting
is inhaled goes directly to brain ↑ BP

STIMULANT
RESPIRATORY
C-V



SYNCOPE
CONTRAINDICATION:
NONE

MEDICAL EMERGENCIES

MANAGEMENT:

1. PREVENTION
2. PREPARATION
3. **RECOGNITION**
4. TREATMENT

RECOGNITION

CHEST PAIN
ALTERED CONSCIOUSNESS
SEIZURES diff. breathing
RESPIRATORY DISTRESS
DRUG-RELATED EMERGENCIES
- **OVERDOSE - 85%**
- **ALLERGY - 15%**

MEDICAL EMERGENCIES

MANAGEMENT:

1. **PREVENTION**
2. **PREPARATION**
3. **RECOGNITION**
4. **TREATMENT**

BASIC LIFE SUPPORT

(C.P.R.)

HISTORY OF MODERN CPR

1960 - 14 PATIENTS WHO SURVIVED CARDIAC ARREST USING CLOSED CHEST CARDIAC MASSAGE
- KOUWENHOVEN, KNICKERBOCKER & JUDE

1960 - INTRODUCED COMBINATION OF CHEST COMPRESSIONS & RESCUE BREATHING
- MARYLAND MEDICAL SOCIETY

1962 - INTRODUCTION OF D.C. DEFIBRILLATION

1966 – AHA – FIRST SET OF CPR GUIDELINES

2005 – MEETING OF INTERNATIONAL CONSENSUS CONFERENCE
- GUIDELINES UP TO 2010

2010 – INTERNATIONAL CONSENSUS CONFERENCE
- 50TH ANNIVERSARY OF MODERN CPR
- 356 RESUSCITATION EXPERTS FROM 29 COUNTIRES
- 36 - MONTH PERIOD BEFORE CONFERENCE

BASIC LIFE SUPPORT

ADULTS - PHONE FIRST

CHAIN OF SURVIVAL
- EARLY RECOGNITION / ACTIVATION OF EMS
- EARLY CPR – COMPRESSIONS
- RAPID DEFIBRILLATION
- EFFECTIVE ACLS
- INTEGRATED POST-CARDIAC ARREST CARE

most adults become unconscious due to cardiac problems

BASIC LIFE SUPPORT

CHILDREN - PHONE FAST

CHAIN OF SURVIVAL

PREVENTION

EARLY CPR

PROMPT ACCESS TO E.M.S.

EFFECTIVE PALS

INTEGRATED POST-CARDIAC ARREST CARE

most events that occur w/ children is respiratory foreign body issues

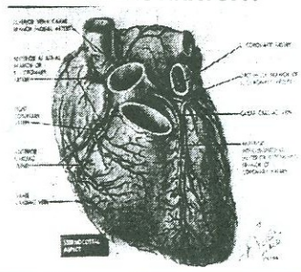
MEDICAL EMERGENCIES

CHEST DISCOMFORT

CORONARY ARTERY DISEASE

CHEST DISCOMFORT

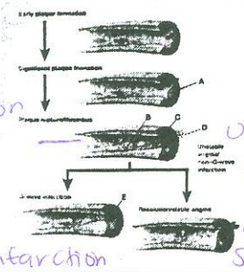
CARDIAC ANATOMY



- (coronary artery supplies blood to heart (left / right)
- spasm / blockage ↓ bs

CHEST DISCOMFORT

CORONARY ARTERY DISEASE



plaque formation

plaque ruptures/ thrombus

unstable angina non q wave infarct

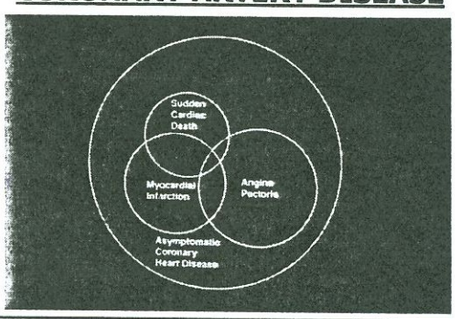
Q wave infarction

resolved/ stable angina

need 80-85% blockage before symptoms develop

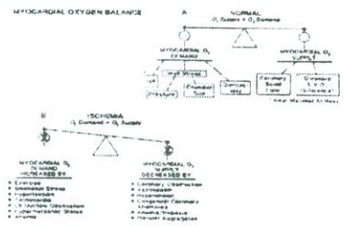
- during M.I. → stents ballooning (air)
- aspirin – prevention

CORONARY ARTERY DISEASE



CORONARY ARTERY DISEASE

MYOCARDIAL OXYGEN BALANCE



no questions on this

CORONARY ARTERY DISEASE

RADIATION PATTERNS

① L shoulder + ulnar nerve of L arm
② Ht + N referred pain
③ R shoulder / epigastric pain

ANGINA PECTORIS

MUST HAVE PRE-EXISTING H/O ANGINA!!!!

TREATMENT:

- **P- SEMIRECUMBENT POSITION**
  - DECREASES DEMAND
- **A- USUALLY NOT AN ISSUE**
- **B- OXYGEN**
  - INCREASES OXYGEN SUPPLY
- **C- USUALLY NOT AN ISSUE**
- **D- NITRATES** (vasodilator) ↓ demand
  - INCREASE OXYGEN SUPPLY
  - *DECREASES DEMAND*
  - 3 DOSES Q 5 MINUTES

place pt on 45° ↳ to ↓ demand b/c blood will now circulate to legs pulling in less blood ↓ demand

check BP pt should get burning sensation under tongue

• if pt not diagnosed w/ angina + has 1st episode of chest pain in ur office don't treat as angina

MYOCARDIAL INFARCTION

CONSIDER MI:

- NO H/O C-V DISEASE
- PAIN WORSE THAN NORMAL
- 3 DOSES NTG
- PAIN RETURNS → NOT ANGINA

SILENT MI:

- ELDERLY PTS. W/DIABETES b/c of pheriphyn neuropathy
- WOMEN
- NO PAIN
- S.O.B.
- DIAPHORETIC
- N/V
- FEAR

• ↓ BP / CO, pales sweating N/V

MYOCARDIAL INFARCTION

TREATMENT: no chest pumping

- **P- SEMIRECUMBENT POSITION**
  - DECREASES DEMAND
- **A- USUALLY NOT AN ISSUE**
- **B- OXYGEN – 4-6 L/MIN.**
  - INCREASES OXYGEN SUPPLY
- **C- USUALLY NOT AN ISSUE**
- **D- NITRATES**
  - INCREASE OXYGEN SUPPLY
  - *DECREASES DEMAND*
- **ASPIRIN – 160 – 325 MG. -15-20 MIN. TO EFFECT** (greatest affect on platelets)
  - INCREASES OXYGEN SUPPLY
- **NITROUS OXIDE - 35-40%**
  - DECREASES DEMAND

• aspirin: anti thrombotic
- doesn't affect blood factors or platelets
→ Suppresses prostaglandins + thromboxanes by inhibiting cox-1
→ in platlets irreversibly block TX A2 preventing their aggregation

MYOCARDIAL INFARCTION

TREATMENT:

35% NITROUS OXIDE

NOT A STANDARD OF CARE!

ADVANTAGES:

- **GASEOUS ANALGESIA**
  - 20% NITROUS OXIDE = 10 - 15 MG. OF M.S.
- **SEDATION**
- **NO EFFECT ON B.P.**
- **SOURCE OF ENRICHED OXYGEN**
  - 3x's more 50-60% VS. 21% (air)
- **NO ADVERSE SIDE EFFECTS:**
  - NO CNS / RESPIRATORY DEPRESSION
  - NAUSEA / VOMITING

• when hel p comes they will:
1. start IV
2. do EKG
3. give morphine / indicators

• if MI occurs at home + pt goes to emergency rm:
1. O_2 / Nitroglyceron / aspirin

MYOCARDIAL INFARCTION

EARLY 911

COMPLICATIONS:

CARDIAC DYSRHYTHMIAS

ventricular fibrilation **52% OF MORTALITY**

VF = CARDIAC ARREST

FIRST HOUR

ACUTE HEART FAILURE

closure in LV; not ehough CO to sustain life

CARDIAC ARREST

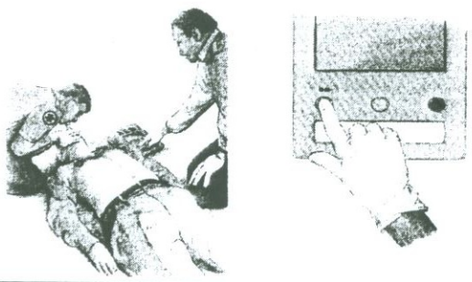
VF - 90% OF ADULT ARRESTS
ONSET OF CLINICAL DEATH

TREATMENT:

- **P- SUPINE – TRENDELENBERG**
- **C- CHEST COMPRESSIONS**
  - **C.O. = 20% OF NORMAL**
- **A- HEAD TILT – CHIN LIFT**
- **B- OXYGEN**
  - **INCREASES OXYGEN SUPPLY**
- **D- DEFIBRILLATE**
  - **A.E.D. USE – CAN I USE ONE???**
  - **CAN YOU PRESS A BUTTON???**
  - **4 UNIVERSAL STEPS**

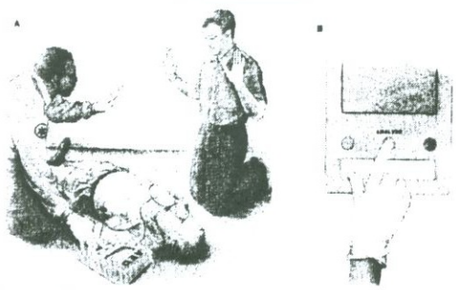
① basic life support : CPR

POWER ON

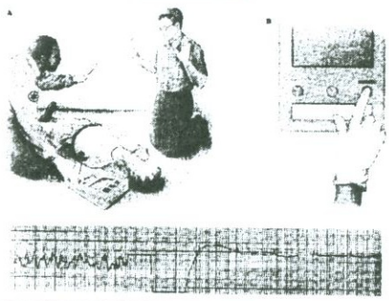


ATTACH PADS

ANALYZE



SHOCK



after shock continue CPR

A.E.D.

SPECIAL SITUATIONS:

- HAIRY CHEST
  - PULL OFF PADS
    - HAIR COMES WITH PADS
  - SHAVE WITH RAZOR
- WATER
  - PULL VICTIM OUT OF WATER
  - DRY CHEST WITH TOWEL
- IMPLANTED PACEMAKER/DEFIBRILLATOR
  - PAD 1 INCH TO THE SIDE OF IMPLANTED DEVICE
- TRANSDERMAL MEDICATION PATCH
  - REMOVE PATCH – WIPE AREA CLEAN

pads must contact skin

CARDIAC ARREST

TWO MOST IMPORTANT FACTORS:

EARLY HIGH-QUALITY C.P.R.

EARLY DEFIBRILLATION

- NO DRUG HAS EVER BEEN SHOWN TO BE EFFECTIVE!

ALTERED CONSCIOUSNESS

A.M.S.
ALTERED MENTAL STATUS

ALTERED CONSCIOUSNESS

A SYMPTOM OF A WIDE VARIETY OF POSSIBLE MEDICAL CONDITIONS

BRAIN NEEDS:

- OXYGEN
- GLUCOSE

not a muscle... glycogen not stored

RANGE:

- LIGHTHEADEDNESS TO L.O.C.

loss of consciencelessness

ALTERED CONSCIOUSNESS

DIFFERENTIAL DIAGNOSIS:

- VASOVAGAL SYNCOPE
- ORTHOSTATIC HYPOTENSION
- HYPERVENTILATION
- DRUG INGESTION
- A.M.I. / CARDIAC ARREST / DYSRHYTHMIAS
- CEREBROVASCULAR CAUSES
- EPILEPSY / SEIZURES (L.A. TOXICITY)
- ANAPHYLAXIS
- HYPOGLYCEMIA
- ACUTE ADRENAL INSUFFICIENCY
- THYROID DYSFUNCTION

NEUROCARDIOGENIC SYNCOPE

GR: "SYNKOPE"
"CUTTING SHORT"

VASODEPRESSOR SYNCOPE
VASOVAGAL SYNCOPE
PSYCHOGENIC SHOCK

SYNCOPE

A GENERAL TERM

SUDDEN, BRIEF (HOPEFULLY) L.O.C.

↓ BLOOD FLOW TO BRAIN

FROM ABRUPT REDUCTION IN C.O.

SYNCOPE

MOST COMMON CAUSE OF TRANSIENT L.O.C. IN THE DENTAL OFFICE.

TRIGGERED BY THE EMOTION / STRESS OF, OR DELIVERY OF, DENTAL CARE.

VASO = BLOOD VESSEL
VAGAL = PARASYMPATHETIC INFLUENCE ON HEART

SYNCOPE

PREDISPOSING FACTORS:

1. **PSYCHOGENIC FACTORS**
   - FEAR - ANXIETY - APPREHENSION
   - FIGHT- OR - FLIGHT RESPONSE
   - ABSENCE OF MUSCULAR MOVEMENT
2. **NON-PSYCHOGENIC FACTORS**
   - MAINTENANCE OF UPRIGHT POSITION
     - "CRUCIFIXION"
   - HUNGER
   - EXHAUSTION
   - HOT, HUMID, CROWDED ENVIRONMENT

blood rushes to legs (skeletal muscle) not enough for brain cause ↓ bp

SYNCOPE

PATHOPHYSIOLOGY:

PRESYNCOPE: (pt still conscious)
- ANXIETY / STRESS = CATECHOLAMINE RELEASE
- PERIPHERAL POOLING OF BLOOD
- ← BETA - 2 RECEPTOR STIMULATION
- ← DECREASED ARTERIAL B.P.
- BARORECEPTOR **COMPENSATORY** MECHANISMS
  - SYMPATHETIC NERVOUS SYSTEM ↑ HR, ↑ sweating

SYNCOPE:
- **DECOMPENSATION – BEZOLD-JARISCH REFLEX**
  - VAGALLY- MEDIATED BRADYCARDIA / shallow breathing
- FURTHER DECREASE IN ARTERIAL B.P.
- REDUCED CEREBRAL BLOOD FLOW
- LIGHTHEADEDNESS / L.O.C.

by epi ← in ~~blood~~ legs / muscles stimulate fight or flight

SYNCOPE

SIGNS / SYMPTOMS:

PRESYNCOPE: "IMPENDING L.O.C."
- ANXIETY- PRODROMAL
- WEAKNESS / WARMTH – "I DON'T FEEL WELL!"
- DROP IN ARTERIAL B.P.
- PALLOR (PALE, COLD, CLAMMY SKIN)
- TACHYCARDIA rapid pulse

SYNCOPE:
- BRADYCARDIA
- MARKED HYPOTENSION (SYSTOLIC BP <70 mmHg.)
- PUPIL DILATATION
- L.O.C.
- SEIZURES b/c brain is not purfused w/ blood

place towels under right side ← returning blood to left side

VASODEPRESSOR SYNCOPE

TREATMENT: PRESYNCOPE
- TERMINATE DENTAL PROCEDURE → will regain conscienousness
- P- TRENDELENBERG POSITION (or horizontal)
  - LEFT LATERAL DECUBITUS POSITION FOR PREGNANT FEMALES – AORTOCAVAL COMPRESSION
    - IMPROVES VENTILATION
    - PRESSURE OFF I.V.C.
- A- NOT AN ISSUE IF CONSCIOUS
- B- NOT AN ISSUE IF CONSCIOUS
- C- NOT AN ISSUE IF CONSCIOUS
- D- DEFINITIVE
  - COOL WET TOWEL TO FOREHEAD
  - MONITOR VITAL SIGNS

is conscience

b/c fetus can compress aorta (high pressure) underneath the inferior vena cava (low pressure) can be compressed in supine position in late term females therefore blood will not return to heart

VASOVAGAL SYNCOPE

if unconscience

TREATMENT: SYNCOPE

- P- MAINTAIN TRENDELENBERG POSITION
- A- MAINTAIN AIRWAY
- B- OXYGEN
- C- CHECK CIRCULATION
- D- DRUG
  - AMMONIA CAPSULES
- DEFINITIVE
  - MONITOR VITAL SIGNS
- DISPOSITION???
  - WHAT DO I DO WITH THIS PATIENT?

ORTHOSTATIC HYPOTENSION
(POSTURAL HYPOTENSION)

ORTHOSTATIC HYPOTENSION

usually at end of procedure

TREATMENT:

- P- SUPINE POSITION
- A- MAINTAIN AIRWAY
- B- CHECK BREATHING
- C- CHECK CIRCULATION IF NEEDED
- D- DEFINITIVE
  - LIE - SIT - STAND
    - CHECK V.S. AT EACH POSITION

ORTHOSTATIC HYPOTENSION

DIFFERENTIAL DIAGNOSIS:

O.H.	SYNCOPE
ELDERLY	YOUNG
MEDICATIONS	PHYSICALLY-FIT ATHLETES
DIURETICS	
ANTIHYPERTENSIVES	
ANTIPSYCHOTICS	
BETA-BLOCKERS	
TIMING	TIMING
END OF PROCEDURE	L.A. ADMIN.

SEIZURE

SEIZURE

CAUSES:

- EPILEPSY
  - STRESS INDUCES SEIZURES
- CEREBRAL HYPOXIA W/INADEQUATE AIRWAY
  - SYNCOPE
- HYPOGLYCEMIA
- HYPERVENTILATION (anxiety) (young female)
- L.A. OVERDOSE

SEIZURE

MANAGEMENT

THREE PRINICPLES:

PATIENT PROTECTION

AIRWAY MANAGEMENT

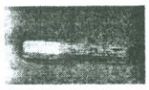
TERMINATION OF SEIZURE

most are self - limiting

SEIZURE

MANAGEMENT:

- P- SUPINE POSITION
- A- AIRWAY MANAGEMENT AS NEEDED
- B- AS ABOVE
- C- USUALLY NOT AN ISSUE heart is fine
- D- DEFINITIVE
  - PROTECT FROM NEARBY OBJECTS
  - TONGUE BLADES - NO
  - ← DENTURES OUT can dislodge cause obstruction
  - MOST SEIZURES ARE SELF-LIMITING
- D- DRUG
  - BENZODIAZEPINES – I.M. VERSED



Status epilepticous - don't stop seizing

LOCAL ANESTHETIC TOXICITY

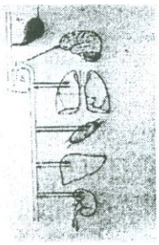
31:20

LOCAL ANESTHETIC TOXICITY

L.A. TOXICITY = TOO MUCH L.A.

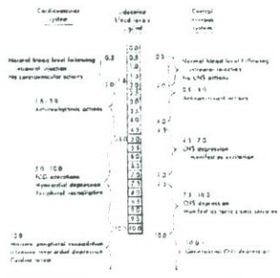
INPUT

OUTPUT



LOCAL ANESTHETIC TOXICITY

PHARMACOLGICAL EFFECTS



LOCAL ANESTHETIC TOXICITY

SEVERE TOXICITY:

C.N.S. **C-V**

MANAGEMENT

SEIZURE MANAGEMENT **CARDIAC ARREST**

"PEARL"

L.O.C. WITH SYRINGE IN HAND
SYNCOPE
LA TOXICITY
ANAPHYLAXIS

HYPOGLYCEMIA

HYPOGLYCEMIA

INSULIN SHOCK
INSULIN-DEPENDENT DIABETES (1 & 2)
HYPOGLYCEMIA DEFINED
- ADULTS - LESS THAN 50 MG. %
- CHILDREN - LESS THAN 60 MG. %

NO GLYCOGEN STORES IN BRAIN!!
RECOGNITION:
- COLD, MOIST SKIN
- TREMOR (SHAKING)
- SWEATING (DIAPHORETIC)
- ALTERED MENTAL STATUS

HYPOGLYCEMIA

MILD – MODERATE

TREATMENT:
- P- NOT AS IMPORTANT
- A- USUALLY NOT AN ISSUE
- B- USUALLY NOT AN ISSUE
- C- USUALLY NOT AN ISSUE
- D- DEFINITIVE
  - SUGAR

HYPOGLYCEMIA

SEVERE

TREATMENT:
- P- SUPINE POSITION
- A- MAINTAIN AIRWAY
- B- CHECK BREATHING
- C- USUALLY NOT AN ISSUE
- D- DEFINITIVE

HYPOGLYCEMIA

SEVERE

TREATMENT:
- D- DEFINITIVE
  - E.M.S.
- D- DRUG
  - GLUCOSE
  - GLUCAGON
    - 1 MG. SC, IM, OR SL

CEREBROVASCULAR COMPROMISE

CVA = STROKE
"A BRAIN ATTACK"

DEFINITION OF C.V.A.

DECREASE IN BLOOD FLOW TO A PORTION OF THE BRAIN

TWO TYPES:

- ISCHEMIC STROKE – 88% OF ALL CVA'S
  - THROMBOTIC - SIMILAR TO M.I.
  - EMBOLIC - A-FIB.
- HEMORRHAGIC

DEFINITION OF CVA

HEMORRHAGIC STROKE

- LESS COMMON
- MORE COMMON IN DENTAL OFFICE
- MORE LIKELY TO BE FATAL
- MORE N/V, HA, & CHANGES IN LEVEL OF CONSCIOUSNESS
- PROGRESSION OF SYMPTOMS OVER MINS. TO HRS.

SIGNS OF A STROKE

- SUDDEN NUMBNESS OR WEAKNESS OF FACE, ARM, OR LEG
  - USUALLY UNILATERAL (FOCAL DEFICIT)
- SUDDEN CONFUSION, TROUBLE SPEAKING, TROUBLE UNDERSTANDING
- TROUBLE WALKING, DIZZINESS, LOSS OF BALANCE
- SEVERE UNREMITTING HEADACHE
  - "WORST HEADACHE EVER!!"

DELAY IN ACCESSING TREATMENT

- LACK OF RECOGNITION OF SYMPTOMS BY PATIENT OR HEALTH CARE PROVIDER
- CVA vs. MI – 2-3x longer delay
- NOT USUALLY PAINFUL
- CAN OCCUR DURING SLEEP
  - "WAKE-UP STROKES"
- ELDERLY MAY BE ALONE AND UNABLE TO CALL FOR HELP

MANAGEMENT OF THE STROKE PATIENT

- RAPID RECOGNITION AND REACTION
- RAPID EMS DISPATCH
- RAPID EMS TRANSPORT
  - PREARRIVAL NOTIFICATION
- RAPID DIAGNOSIS AND TREATMENT
  - 3 HRS TO FIBRINOLYTICS - rtPA

RECOGNITION
ACT F.A.S.T.

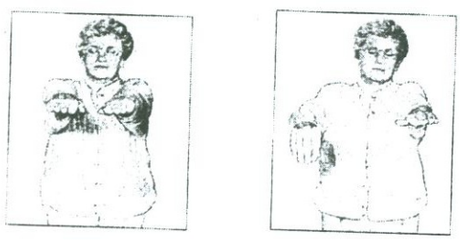
FACE: ASK THE PERSON TO SMILE.
IS THERE ASYMMETRY OR WEAKNESS?

RIGHT-SIDED FACIAL NERVE WEAKNESS

RECOGNITION
ACT F.A.S.T.

ARMS: ASK THE PERSON TO RAISE BOTH ARMS
DOES ONE ARM DRIFT DOWNWARD?

ARM DRIFT



RECOGNITION
ACT F.A.S.T.

SPEECH: ASK THE PERSON TO REPEAT A SIMPLE SENTENCE.
"YOU CAN'T TEACH AN OLD DOG NEW TRICKS"
ARE THE WORDS SLURRED? CAN THEY REPEAT IT CORRECTLY?

RECOGNITION
ACT F.A.S.T.

TIME: IF THE PERSON SHOWS ANY OF THE ABOVE SIGNS CALL 911

IF ANY OF THE ABOVE IS ABNORMAL, THE PROBABILITY OF A STROKE IS 72%

ADVISE OF POSSIBLE STROKE SO THE PATIENT IS TRANSPORTED TO A SPECIALIZED STROKE CENTER

THREE HOURS TO DRUGS

MANAGEMENT OF STROKE PATIENT

MANAGEMENT:
- RECOGNITION OF SYMPTOMS
- ACTIVATE EMS: DIAGNOSIS POSSIBLE STROKE
- P- SEMI-RECLINED
- MONITOR ABC's
- NO SPECIFIC MEDICATIONS
- IF SEIZURES, MAY NEED BENZODIAZEPINE
- IF PATIENT DESATURATES - <92%
  - SUPPLEMENTAL OXYGEN
  - OXYGEN CAN INCREASE INTRACRANIAL PRESSURE

HYPERSENSITIVITY REACTIONS

ALLERGIC REACTIONS

ALLERGY

FORTUNATELY RARE:
- LATEX
- DRUGS:
  - ABX RARELY USED FOR SBE PROPHYLAXIS
  - ABX ARE USED FOR JOINT PROPHYLAXIS
  - LOCAL ANESTHETICS
    - ESTER VS. AMIDE
    - TOPICAL ANESTHETICS – MANY ARE ESTER-TYPE L.A.'S
    - PARABENS
    - SODIUM METABISULFITE

ALLERGY

SULFA ALLERGY / "SULFUR ALLERGY"

SOURCES OF SULFUR:
1. ELEMENTAL SULFUR
   - CAN'T BE ALLERGIC TO THIS
   - PENICILLIN / ARTICAINE
2. SULFA ANTIBIOTICS
3. SODIUM METABISULFITE
   - WINE - BEER - FOODS
   - PRESERVATIVE IN L.A. CARPULE
   - AVOID EPINEPHRINE-CONTAINING L.A.'S

ALLERGY

ORGAN SYSTEMS

SKIN
- DELAYED VS. IMMEDIATE – 60 MINUTES

RESPIRATORY
- UPPER AIRWAY
  - VOCAL CORDS
- LOWER AIRWAY
  - ASTHMA-LIKE SYMPTOMS

GENERALIZED ANAPHYLAXIS

ALLERGY

DRUG SEQUENCE

SKIN - DELAYED
- HISTAMINE BLOCKER
  - DIPHENHYDRAMINE / CHLORPHENIRAMINE

SKIN - IMMEDIATE

RESPIRATORY

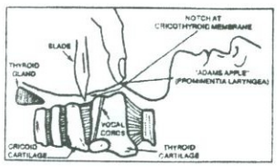
GENERALIZED ANAPHYLAXIS
- EPINEPHRINE – 0.3 MG.
- HISTAMINE BLOCKER
- CORTICOSTEROID IF AVAILABLE
- "D COMES FIRST"

ALLERGY

TREATMENT: UPPER AIRWAY

LARYNGEAL EDEMA:

CRICOTHYROTOMY



RESPIRATORY DIFFICULTY

POSITION:

SITTING

LEANING FORWARD

HYPERVENTILATION

HYPERVENTILATION

MOST COMMON CAUSE OF RESPIRATORY DIFFICULTY IN DENTAL OFFICE

ANXIETY = RAPID, DEEP BREATHING

PATHOPHYSIOLOGY:

- **CNS – VASOCONSTRICTION**
  - MENTAL CHANGES
- **SKELETAL MUSCLE – VASODILATION**
  - SYNCOPE
- **BLOOD - RESPIRATORY ALKALOSIS**
  - DECREASE IN IONIZED CALCIUM
  - MUSCULOSKELETAL ISSUES

HYPERVENTILATION

MANAGEMENT:

- **P- SEMI-RECUMBENT / SITTING POSITION**
- **A- USUALLY NOT AN ISSUE**
- **B- OBVIOUSLY NOT AN ISSUE**
- **C- USUALLY NOT AN ISSUE**
- **D- DEFINITIVE**
  - REASSURE PATIENT
  - MANEUVERS TO RETAIN CARBON DIOXIDE
  - **DRUG THERAPY**
    - MIDAZOLAM 5 MG. IM

ASTHMA

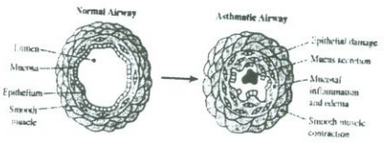
ASTHMA

PATHOPHYSIOLOGY:

BRONCHOCONSTRICTION

MUCOSAL EDEMA

THICK MUCOUS PRODUCTION



ASTHMA

TREATMENT:

P- SITTING POSITION

A- USUALLY NOT AN ISSUE

B- ADMINISTER OXYGEN

C- USUALLY NOT AN ISSUE

D - DRUGS

INHALED BRONCHODILATOR

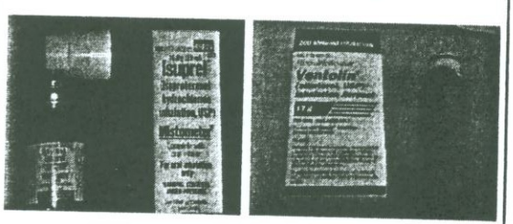
ALBUTEROL / EPINEPHRINE

EPINEPHRINE 0.3 MG. SC / IM

DEFINITIVE - E.M.T.

ASTHMA

BETA-RECEPTOR AGONIST



ASTHMA

M.D.I. – METERED DOSE INHALER

DRUG	RECEPTOR	DOSE
ISOPROTERENOL (*ISUPREL*)	B1 & B2	.131 MG.
METAPROTERENOL (*ALUPENT, METAPREL*)	B1 & B2	.65 MG.
ALBUTEROL (*PROVENTIL, VENTOLIN*)	B2	.090 MG.
PIRBUTEROL (MAXAIR)	>B2 (LONGER-ACTING)	

THE END