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The Pre-Live Modules are carefully designed to help you prepare for the 35-day Boot Camp and/or the 10-Day Live Course. They are designed to help you refresh your basic concepts that were commonly asked in the actual NCLEX for the last 3-6 months. The modules are very crucial to your NCLEX success! According to our own study, 98.38% of Rachell Allen students who really studied the modules performed better than those who did not pay much attention to the modules prior to attending the 10-Day Comprehensive Live Course

Since you are getting the modules for free, let us make it a habit to say "Thank You". A grateful heart attracts success, brilliance and abundance!

Happy Learning!

- The Rachell Allen Success Team

MODULE 1

Pharmacology

"Your hardest times often lead to the greatest accomplishments in your life.

Stay STRONG. It will all be worth it in the end."

I LOVE NEURO!

The autonomic nervous system contains two subdivisions: the parasympathetic (PNS) and sympathetic nervous systems (SNS).

Sympathetic and parasympathetic divisions have complimentary roles: the sympathetic division functions in actions requiring quick responses (fight or flight) and the parasympathetic division regulates actions that do not require rapid responsiveness (rest and digest).

The SNS and PNS can be seen as constantly modulating vital functions, in usually antagonistic fashion, to achieve homeostasis. This includes both cardiovascular and respiratory functions.

However, many instances of sympathetic and parasympathetic activity cannot be ascribed to fight or rest situations. For example, standing up from a reclining or sitting position would entail an unsustainable drop in blood pressure if not for a compensatory increase in the arterial sympathetic tonus.
Another example is the constant, second-to-second modulation of heart rate by sympathetic and parasympathetic influences as a function of the respiratory cycles. More generally, these two systems should be seen as permanently modulating vital functions, in usually antagonistic fashion, to achieve homeostasis.

Some functions of the SNS include diverting blood flow away from the gastrointestinal (GI) tract and skin via vasoconstriction, enhancing blood flow to skeletal muscles and the lungs, dilating the bronchioles of the lung to allow for greater oxygen exchange, and increasing heart rate.

The PNS typically functions in contrast to the SNS by dilating the blood vessels leading to the GI tract, causing constriction of the pupil and contraction of the ciliary muscle to the lens to enable closer vision, and stimulating salivary gland secretion, in keeping with the rest and digest functions.

Identify the following physiologic responses as:

"SYMPA" for SYMPATHETIC NERVOUS SYSTEM or

"PARA" for PARASYMPATHETIC NERVOUS SYSTEM

DRY MOUTH	**DIARRHEA**	**MIOSIS**	**BRONCHO-CONSTRICTION**
CONSTIPATION	**HYPERTENSION**	**UTERINE CONTRACTION**	**INCONTINENCE**

MYDRIASIS	**PUPIL DILATION**	**INCREASED SALIVATION**	**BRADYCARDIA**
VASODILATION	**HYPER-GLYCEMIA**	**URINARY RETENTION**	**INCREASED LACRIMATION**
TACHYCARDIA	**HYPOTENSION**	**UTERINE RELAXATION**	**BRONCHO-DILATION**

Let's get to know our NEUROTRANSMITTERS!

Neurotransmiters, also known as chemical messengers, are endogenous chemicals that enable neurotransmission. They transmit signals across a chemical synapse, such as a neuromuscular junction, from one neuron (nerve cell) to another "target" neuron, muscle cell, or gland cell. Neurotransmitters are released from synaptic vesicles in synapses into the synaptic cleft, where they are received by receptors on the target cells.

Acetylcholine is a very widely distributed excitatory neurotransmitter that triggers muscle contraction and stimulates the excretion of certain hormones. In the central nervous system, it is involved in wakefulness, attentiveness, anger, aggression, sexuality, and thirst, among other things. Alzheimer's disease is associated with a lack of acetylcholine in certain regions of the brain.

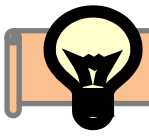
Dopamine is a neurotransmitter involved in controlling movement and posture. It also modulates mood and plays a central role in positive reinforcement and dependency. The loss of dopamine in certain parts of the brain causes the muscle rigidity typical of Parkinson's disease.

GABA (gamma aminobutyric acid) is an inhibitory neurotransmitter that is very widely distributed in the neurons of the cortex. GABA contributes to motor control, vision, and many other cortical functions. It also regulates anxiety. Some drugs that increase the level of GABA in the brain are used to treat epilepsy and to calm the trembling of people suffering from Huntington's disease.

Glutamate is a major excitatory neurotransmitter that is associated with learning and memory. It also thought to be associated with Alzheimer's disease, whose first symptoms include memory malfunctions.

Norepinephrine is a neurotransmitter that is important for attentiveness, emotions, sleeping, dreaming, and learning. Norepinephrine is also released as a hormone into the blood, where it causes blood vessels to contract and heart rate to increase.

Serotonin contributes to various functions, such as regulating body temperature, sleep, mood, appetite, and pain. Depression, suicide, impulsive behaviour, and aggressiveness all appear to involve certain imbalances in serotonin.



Identify the correct neurotransmitter being described at the table below.

Choices:

Acetylcholine	Norepinephrine
Serotonin	GABA
Dopamine	Glutamate

TYPE	MECHANISM OF ACTION	PHYSIOLOGIC EFFECTS
1._____	**Inhibitory**	**Affects behavior (attention, emotions)** **Fine movement**
2._____	**Excitatory**	**Parasympathetic effects sometimes inhibitory**
3._____	**Inhibitory**	**Control mood and sleep** **Inhibits pain pathways**
4._____	**Excitatory**	**Mood and overall activity**
5._____	**Inhibitory**	**Regulates other neurotransmitters**

Identify whether the Disorder has a LOW or HIGH level of Neurotransmitter.

1. **Depression = _____ Serotonin**
2. **Mania = _____ Serotonin**
3. **Anxiety = _____GABA**
4. **Psychosis = _____ Dopamine**
5. **Parkinson's Disease = _____ Dopamine**
6. **Alzheimer's Disease = _____ Acetylcholine**
7. **Schizophrenia = _____Dopamine**
8. **Myasthenia Gravis = _____Acetylcholine**

Drugs Acting on the Central Nervous System

Fill in the blanks with the correct information.

_____ is a very common affective disorder involving feelings of sadness that are much more severe and longer lasting than the suspected precipitating event, and the mood of affected individuals is much more intense.

Serial No. 2018-ARD-Mod1-US

ANTIDEPRESSANTS

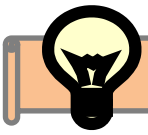
Antidepressants may be classified into three groups:

1. _____
2. _____
3. _____

The Tricyclic antidepressants (TCAs), including the amines, secondary amines, and tetracyclines, all reduce the reuptake of _____and _____ into the nerves, which leads to an accumulation of these neurotransmitters in the synaptic cleft and increased stimulation of the postsynaptic receptors. The exact mechanism of action in decreasing depression is not known but it is thought to be related to the accumulation of NE and 5HT (serotonin) in certain areas of the brain. A patient who does not respond to one TCA may respond to another drug from this class. TCAs that are available include the amines amitriptyline (generic), amoxapine (Asendin), clomipramine (Anafranil), doxepin (Sinequan), imipramine (Tofranil), and trimipramine (Surmontil); the secondary amines desipramine (Norpramin), nortiptyline (Aventyl, Pamelor), and protriptyline (Vivactil); and the tetracyclic drug maprotiline (generic).

_____ irreversibly inhibits MAO, an enzyme found in nerves and other tissues (including the liver), to break down the biogenic amines NE, dopamine, and 5HT and relieve depression. At one time, MAOIs were used more often, but now, they are used rarely because they require a specific dietary regimen to prevent toxicity. Agents include isocarboxazid (Marplan), phenelzine (Nardil), and tranylcypromine (Parnate). Monitor the patient for _____ **to** _____ weeks to ascertain the onset of the full therapeutic effect. Monitor blood pressure and orthostatic blood pressure carefully to arrange for a slower increase in dose as needed for patients who show a tendency toward hypotension.

_____**,** the newest group of antidepressant drugs, specifically block the reuptake of 5HT (serotonin), with little to no known effect on NE. Because SSRIs do not have the many adverse effects associated with TCAs and MAOIs, they are better choice for many patients. Drugs include fluoxetine (Prozac), the first kind; citalopram (Celexa); escitalopram (Lexapro); ;fluvoxamine (Luvox); paroxetine (Paxil); sertraline (Zoloft); and vilazodone (Viibryd).



Fill in the blanks using the words listed in the box.

Choices:		
Dyskinesia	Dopaminergic	pyramidal effct
Seizure	Parkinsonism	basal ganglia
Substancia gelatinosa	Mania	Cholinergic
Benzodiazepines	Anti-seizure	cerebellum
Anticholinergic	Extrapyramidal tract	bradykinesia

_____1. Drug that opposes the effects of acetylcholine at acetylcholine receptor sites.

_____ 2. Difficulty in performing intentional movements and extreme slowness and sluggishness; characteristic of Parkinson's disease

_____3. Drug that increases the effects of dopamine at receptor sites

_____4. Parkinson's disease-like extrapyramidal symptoms that are adverse effects associated with particular drugs or brain injuiries.

_____5. A part of the brain rich in dopamine and dopamine receptors; site of degenerating neurons in Parkinson's disease

_____ 6. The most frequently-used anxiolytic drugs, prevent anxiety without causing much associated sedation. Examples are alprazolam (Xanax), chlordiazepoxide (Librium), clonazepam (Valium), estazolam (ProSom), flurazepam (Dalmane), lorazepam (Ativan), midazolam (generic), oxazepam (Serax), quazepam (Doral), temazepam (Restoril), triazolam (Halcion).

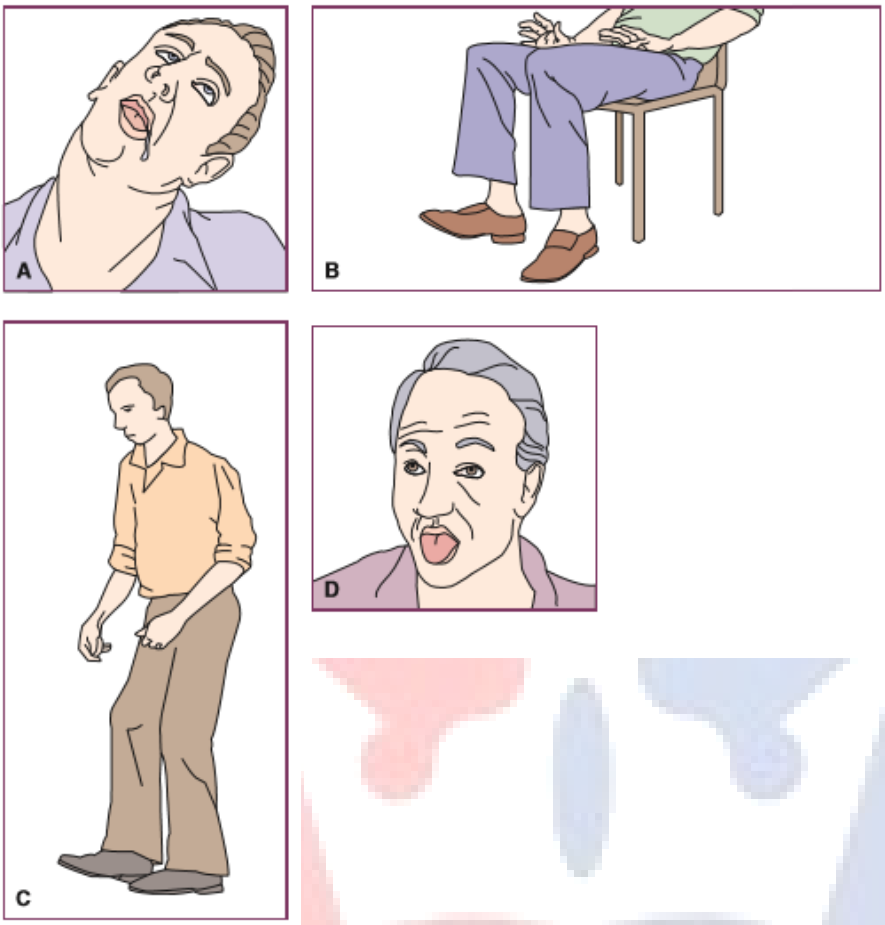
_____7. State of hyperexcitability; one phase of bipolar disorders, which alternate between periods of severe depression and mania.

_____8. Seizure that begins in one area of the brain and rapidly spreads throughout both hemispheres

_____9. Cells from the cortex and subcortical areas, including the basal ganglia and the cerebellum, which coordinate unconsciously controlled muscle activity; allows the body to make automatic adjustments in posture or position and balance.

_____10. Fibers within the CNS that control precise, intentional movement

Identify the manifestation at the given illustrations below.



Source: Amy M. Karch, Focus on Nursing Pharmacology, Lippincott Williams, 6th edition

Common neurological effect of antipsychotic drugs.

A. _____ - spasms of the tongue, neck, back and legs. Spasms may cause unnatural positioning of the neck, abnormal eye movements, excessive salivation.
B. _____ – continuous restlessness, inability to sit still. Constant moving, foot tapping, hand movements may be seen
C. _____ – muscle tremors, cogwheel rigidity, drooling, shuffling gait, slow movements
D. _____– abnormal muscle movements such as lip smacking, tongue darting, chewing movements, slow and aimless arm and leg movements.

Antipsychotic medications commonly produce extrapyramidal symptoms as side effects. The extrapyramidal symptoms include acute dyskinesias and dystonic reactions, tardive dyskinesia, Parkinsonism, akinesia, akathisia, and neuroleptic malignant syndrome. Extrapyramidal symptoms are

caused by dopamine blockade or depletion in the basal ganglia; this lack of dopamine often mimics idiopathic pathologies of the extrapyramidal system. Less recognized is that extrapyramidal symptoms are also associated with certain non-antipsychotic agents, including some antidepressants, lithium, various anticonvulsants, anti-emetics, and rarely, oral-contracenptive agents. Extrapyramidal symptoms caused by these agents are indistinguishable from neuroleptic-induced extrapyramidal symptoms.

Matching type. Extrapyramidal Side Effects of Anti-psychotics

_____1.Involuntary muscular movements of face, arms, legs, and neck

_____2.Uncontrolled rolling back of the eyes

_____3.Muscular weakness and fatigue-like symptoms

_____4.Restlessness, fidgeting, pacing beyond the conscious control of the client

_____5.bizarre facial and tongue movements, stiff neck, difficulty swallowing

_____6hyperthermia, altered level of consciousness, muscle rigidity

A. Oculogyric crisis
B. Tardive dyskinesia
C. Dystonia
D. Neuroleptic malignant syndrome (NMS)
E. Dystonia
F. Akinesia

Fill in the blanks using the words listed in the box.

Cholinergic	dry mouth	constipation	mania	panic	
Anticholinergic	hyperactivity	lacrimation	8.6	inattention	
Cholinesterase	diarrhea	urination	0.6	salivation	
1.2	2.0	lithium	phobia	impulsivity	OCD

_____ inhibitors elevate acetylcholine concentration in cerebral cortex by slowing degredation of acetylcholine released in cholinergic neurons. Examples of the drugs are Donepezil (Aricept) and Tacrine (Cognex).

Cholineric Side effects are:

1. _____ - increased in oral secretions
2. _____ - increased in production of tears
3. _____ - urinary frequency
4. _____ - fecal incontinence; frequent defecation

_____, at the opposite pole from depression, occurs in individuals with bipolar disorder, who experience a period of depression followed by a period of mania. Lithium salts are taken orally for the management of manic episodes and prevention of future episodes. These very toxic drug cause severe CNS, renal, and pulmonary problems that may lead to death. Despite the potential for serious adverse effects, the drug is used with caution because it is consistently effective in the treatment of mania. The therapeutically effective serum level is 0.6 to 1.2 mEq/L.

_____ is an irrational fear of something that poses little or no risk of danger.

_____ is a disorder characterized by excessive thoughts that lead to repetitive behaviors

_____ is sudden sensation of fear, making one illogical or irrational.

_____ is not paying attention

_____ is shifting from one uncompleted activity to another

_____ has no regard/not considering consequences

SYMPATHETIC NERVOUS SYSTEM

The following signs usually increase during Sympathetic Nervous System stimulation.

G	B	L	O	O	D	P	R	E	S	S	U	R	E	E	H	N	X
T	Z	P	U	L	S	E	R	A	T	E	M	B	I	F	F	K	K
E	Q	D	D	R	J	P	T	O	R	B	W	M	M	V	B	J	M
Q	K	S	Z	X	O	B	D	U	E	G	L	U	C	O	S	E	F
R	E	S	P	I	R	A	T	O	R	Y	R	A	T	E	G	S	B
D	V	F	H	B	X	E	E	D	X	O	T	A	L	R	E	M	J
N	C	Y	M	M	S	P	T	A	C	Y	A	E	B	N	Y	G	W
F	T	R	O	V	R	L	Y	U	R	O	J	U	C	K	B	E	N
M	G	K	G	A	S	B	H	W	O	L	Z	P	M	U	A	I	B
Z	V	N	T	E	M	P	E	R	A	T	U	R	E	J	H	C	N
H	Y	P	Y	U	G	A	Z	L	W	Q	W	T	Z	T	U	H	L
E	Y	B	V	O	S	T	A	L	E	W	R	I	J	X	J	S	L

Find the following words in the puzzle.

BLOOD PRESSURE	GLUCOSE	PULSE RATE	RESPIRATORY RATE	TEMPERATURE

PARASYMPATHETIC NERVOUS SYSTEM

The following words are evident during Parasympathetic Nervous System stimulation.

H S J Z K U V K B X H S G S L C V C
S M L S L O G T W X X C V K A F Q H
Z O N A V O I H I Q D V P K C G P P
A O J L S H C S B I A X D M R S U Q
N T Z I Y H A Q K W G X N D I P H K
V H N V Q G E K I J Q I B I M Z B D
V M O A W F P R F L T N B P A O G T
S U H T N S Y U D H U H E M T F U X
V S Y I B C M W Y D G X I P I P T Z
N C I O E J U C J L I C X Q O G V H
H L I N M L N J G N T F Z Y N A S E

Find the following words in the puzzle.

GIT	GUT	LACRIMATION	SALIVATION	SMOOTH MUSCLES

Too ↓ Neurotransmission Disorders

E	L	W	S	E	F	B	P	T	W	E	C	Z	T	R	F	H	X
S	D	Q	R	C	R	M	D	E	P	R	E	S	S	I	O	N	M
V	Z	H	B	G	E	O	R	Y	A	N	X	I	E	T	Y	B	J
J	Q	K	I	R	M	M	D	D	H	D	T	J	A	N	P	X	I
A	L	Z	H	E	I	M	E	R	S	D	I	S	E	A	S	E	W
H	X	Q	S	G	V	L	W	W	Z	U	V	E	U	V	T	W	B
A	D	C	E	S	Y	L	X	K	C	V	C	S	J	L	I	I	U
H	E	V	J	D	Z	B	S	H	N	P	N	O	R	C	Y	I	Z
B	W	U	G	C	C	O	R	C	G	A	W	M	K	Y	J	N	V
Z	M	Y	A	S	T	H	E	N	I	A	G	R	A	V	I	S	H
V	K	F	U	F	L	E	C	D	F	Z	T	H	A	N	G	B	V
U	I	Y	A	A	Y	Y	U	O	W	E	X	A	N	P	Y	B	N

Find the following words in the puzzle.

ALZHEIMERS DISEASE	ANXIETY	DEPRESSION	MYASTHENIA GRAVIS

"TOO MUCH" NEUROTRANSMISSION

Z	T	G	N	R	S	M	F	S	J	O	P	T	X	M	K	L	M
A	D	F	E	W	Y	V	S	D	B	J	H	K	J	H	J	S	D
X	Y	I	L	D	E	V	E	L	H	O	E	E	M	G	O	A	S
R	J	Z	L	R	G	C	I	M	B	E	A	S	Y	F	I	B	F
Y	V	O	K	A	F	H	Z	N	E	A	N	S	M	K	C	V	P
F	H	Q	A	O	V	B	U	T	G	W	Y	I	C	F	J	I	T
T	Q	G	C	N	N	X	R	L	Q	R	V	H	Y	K	B	P	P
A	G	F	V	O	B	F	E	P	X	E	T	V	G	D	B	K	X
P	G	W	L	R	D	D	O	J	P	X	E	M	A	N	I	A	C
L	H	R	F	M	M	I	S	W	T	W	F	Z	V	D	U	F	D
J	S	C	H	I	Z	O	P	H	R	E	N	I	A	E	O	J	Y
K	X	J	D	E	P	S	Y	C	H	O	S	I	S	E	Z	C	X

Find the following words in the puzzle.
Words are hidden → ↓ and ↘ .

MANIA	PSYCHOSIS	SCHIZOPHRENIA	SEIZURE

A man is prescribed with lithium to treat bipolar disorder. The nurse is most concerned about lithium toxicity when he notices which of these assessment findings?

R	A	A
♥	R	E
H	D	I

ANSWER:

V	I	M
G	N	T
♥	I	O

ANSWER:

LITHIUM TOXICITY!!!

A	E	O
X	N	I
R	♥	A

ANSWER:

♥	N	U
S	♥	A
A	E	♥

ANSWER:

One of the findings of Lithium toxicity

ANSWER: _____

Side Effect is Gingival Hyperplasia

ANSWER: _____

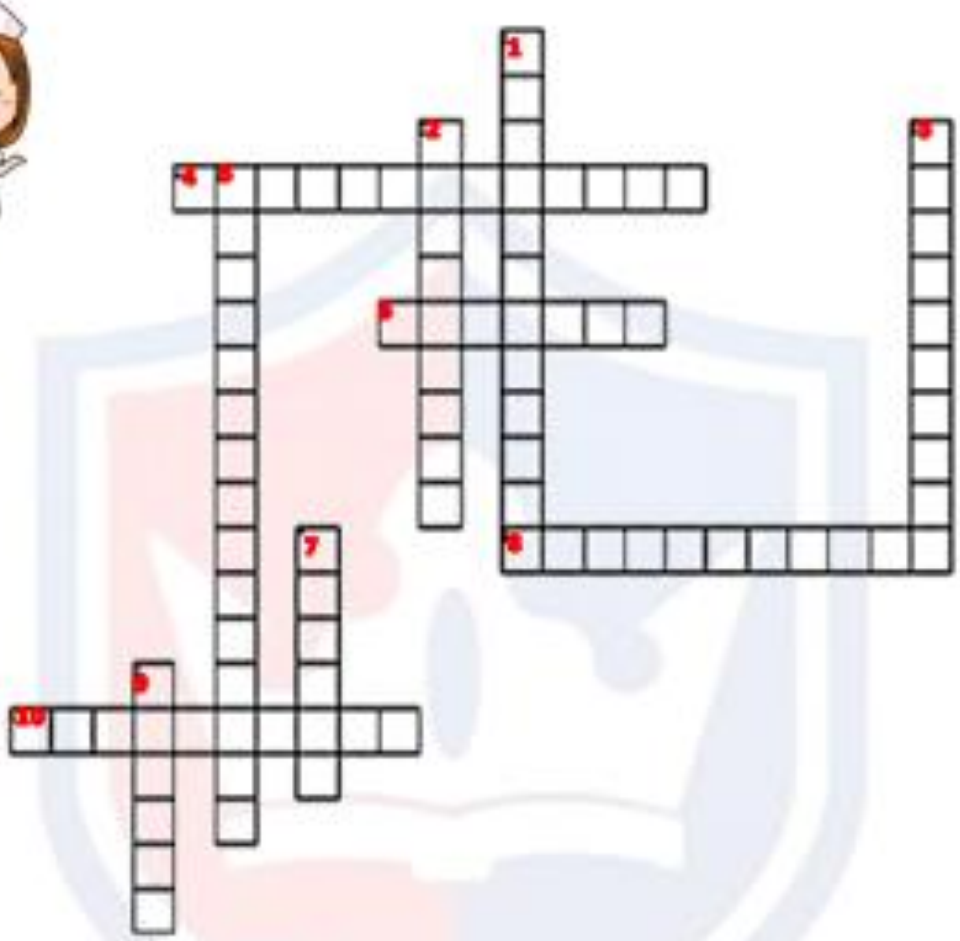
Extrapyramidal Side Effect

ANSWER: _____

Drug of choice for Status Epilepticus

ANSWER: _____

Arrange the letters inside the cube to reveal the answer.



Across

4. anticonvulsant that causes myelosuppression

6. drug of choice for mania

8. biphosphonate given in the morning before breakfast remain upright NPO 30 mins. after

10. decreased norepinephrine and serotonin

Down

1. neuroleptic malignant syndrome

2. needed for calcium absorption

3. estrogen replacement needed for bone formation

5. adverse effect of atypical antipsychotics manifested by fever and sore throat

7. MAOI

9. SSRI

Mrs. Scarlet is started on antipsychotic medications in divided doses, to be taken 4 times per day. Once the medication effectiveness level is reached. Mrs. Scarlet should be monitored for?

_____

_____ _____

Form words by changing positions.

1. Sometimes called as the "Sympathetic Nervous System"

C	D	E	N	R	I	A	E	G

Answer: _____

2. Caused by too little GABA (Gamma Amino Butyric Acid)

Y	X	A	N	I	E	T

Answer: _____

3. Caused by too much Dopamine in the Brain

P	C	O	S	H	Y	S	S	I

Answer: _____

4. A crisis that takes place when Tyramine-rich foods are provided to clients who are prescribed of MAOI.

V	Y	H	P	E	T	R	S	I	E	N	E

Answer: _____

Drugs Acting on the Musculoskeletal System

Arthritis is not a single disease; it is an informal way of referring to joint pain or joint disease. People of all ages, gender and races can do have arthritis, and it is the leading cause of disability. Common arthritis joint symptoms include swelling, pain, stiffness and decreased range of motion. Symptoms may come and go. They can be mild, moderate or severe. They may stay about the same for years, but may progress or get worse over time. Severe arthritis can result in chronic pain, inability to do daily activities and make it difficult to walk or climb stairs. Arthritis can cause permanent joint changes. These changes may be visible, such as knobby finger joints, but often the damage can only be seen on X-ray. Some types of arthritis also affect the heart, eyes, lungs, kidneys and skin as well as the joints.

Degenerative Arthritis

Osteoarthritis is the most common type of arthritis. When the cartilage – the slick, cushioning surface on the ends of bones – wears away, bone rubs against bone, causing pain, swelling and stiffness. Over time, joints can lose strength and pain may become chronic. Risk factors include excess weight, family history, age and previous injury (an anterior cruciate ligament, or ACL, tear, for example).
When the joint symptoms of osteoarthritis are mild or moderate, they can be managed by:

- balancing activity with rest
- using hot and cold therapies
- regular physical activity
- maintaining a healthy weight
- strengthening the muscles around the joint for added support
- using assistive devices
- taking over-the-counter (OTC) pain relievers or anti-inflammatory medicines
- avoiding excessive repetitive movements

If joint symptoms are severe, causing limited mobility and affecting quality of life, some of the above management strategies may be helpful, but joint replacement may be necessary.

Osteoarthritis can prevented by staying active, maintaining a healthy weight, and avoiding injury and repetitive movements.

Inflammatory Arthritis

A healthy immune system is protective. It generates internal inflammation to get rid of infection and prevent disease. But the immune system can go awry, mistakenly attacking the joints with uncontrolled inflammation, potentially causing joint erosion and may damage internal organs, eyes and other parts of

the body. Rheumatoid arthritis and psoriatic arthritis are examples of inflammatory arthritis. Researchers believe that a combination of genetics and environmental factors can trigger autoimmunity. Smoking is an example of an environmental risk factor that can trigger rheumatoid arthritis in people with certain genes.

With autoimmune and inflammatory types of arthritis, early diagnosis and aggressive treatment is critical. Slowing disease activity can help minimize or even prevent permanent joint damage. Remission is the goal and may be achieved through the use of one or more medications known as disease-modifying antirheumatic drugs (DMARDs). The goal of treatment is to reduce pain, improve function, and prevent further joint damage. Uric acid is formed as the body breaks down purines, a substance found in human cells and in many foods. Some people have high levels of uric acid because they naturally produce more than is needed or the body can't get rid of the uric acid quickly enough. In some people the uric acid builds up and forms needle-like crystals in the joint, resulting in sudden spikes of extreme joint pain, or a gout attack. Gout can come and go in episodes or, if uric acid levels aren't reduced, it can become chronic, causing ongoing pain and disability.

Identify the information if it belongs to Rheumatoid, Osteoarthritis, or Gouty Arthritis.

Mark:

RA for Rheumatoid arthritis

OA for Osteoarthritis

GA for Gouty Arthritis

Degeneration "Wear & Tear" _____	Bouchard's _____	Pain relieved by rest _____
Allopurinol _____	Tophi formation _____	Colchicine _____
Autoimmune _____	Faulty purine metabolism _____	Weight-bearing joint pain _____

Swan Neck Deformity	Early morning stiffness	Heberden's
_____	_____	_____

Drugs Acting on the Renal System

Diuretics, also called water pills, are medications designed to increase the amount of water and salt expelled from the body as urine. There are three types of prescription diuretics. They're often prescribed to help treat high blood pressure, but they're used for other conditions as well.

The most common condition treated with diuretics is high blood pressure. The drugs reduce the amount of fluid in your blood vessels, and this helps lower your blood pressure.

Other conditions are also treated with diuretics. Congestive heart failure, for instance, keeps your heart from pumping blood effectively throughout your body. This leads to a buildup of fluids in your body, which is called edema. Diuretics can help reduce this fluid buildup.

When taken as prescribed, diuretics are generally well tolerated. However, they can still cause some side effects.

The more common side effects of diuretics include:

- too little potassium in the blood
- too much potassium in the blood (for potassium-sparing diuretics only)
- low sodium levels
- headache
- dizziness
- thirst
- increased blood sugar
- muscle cramps
- increased cholesterol
- skin rash
- gout
- diarrhea

Identify the given diuretic if it is:

WASTING – for Potassium-wasting type **or**

SPARING – for Potassium-sparing type

Furosemide _____	Bumex _____
Spironolactone _____	Amiloride _____
Eplerenone _____	Diuril _____
Mannitol _____	Triamtrene _____

Drugs Acting on the Cardiovascular System

Fill in the blanks using the words listed in the box.

ACE inhibitor	Antihyperlipidemics	Antiplatelets
Bile acid sequestrants	Antidysrythmics	Thrombolytics
Nitrates	Plasminogens	

_____ 1. Drug that blocks ACE, the enzyme responsible for converting angiotensin I to angiotensin II in the lungs; this blocking prevents the vasoconstriction and aldosterone release related to angiotensin II

_____2. Drugs that affect the action potential of cardiac cells and are used to treat arrhythmias and restore normal rate and rhythm

_____**3**. Drugs used to cause direct relaxation of smooth muscle, leading to vasodilation and decreased venous return to the heart with decreased resistance to blood flow; this rapidly decreases oxygen demand in the heart and can restore the balance between blood delivered and blood needed in the heart muscle of patients with angina.

_____ 4. General term used for drugs used to lower lipid levels in the blood

_____ 5. Drugs that block or inhibit any step of he coagulation process, preventing or slowing clot formation

_____ 6. Drugs that interefere with the aggregation or clumping of platelets to form the platelet plug

_____ 7. Drugs that lyse, or breakdown, a clot that has formed; these drugs activate the plasminogen mechanism to dissolve fibrin threads

SITUATION: Which assessment finding will alert the nurse to suspect early *digitalis toxicity*? Search for the words at the puzzle below.

You should be able to identify 6 manifestations to complete the puzzle.

Digitalis Toxicity

S P M A R C L A N I M O D B A
L O S S O F A P P E T I T E D
A L V V D D M Q L V Y G T R P
I E Y O R G G Z B R Y N X V P
X R H Q M X Y B Y Z L G B N Z
E R V R Z I K K X B T D K Z T
R G M X R N T B L R R N N Y Q
O Y K L Q A A I X K J Y J T D
N J T M G J I U N J P G R T M
A D K Q R M X D S G Z X Q Y N
Z T R T Y Y R Y N E Y J J W N
L Y K T J M Y Z Y Y A T W N Z

VOMITING	DIARRHEA
ANOREXIA	ABDOMINAL CRAMPS
NAUSEA	LOSSOFAPPETITE

SITUATION: A patient is admitted with a diagnosis of hypertension. The nurse anticipates that the medications below may be prescribed to the client.

Clue: Numbers 1-2 are centrally anti-adrenergics

Numbers 3-6 are beta-adrenergic blockers

Numbers 7-10 are calcium-channel blockers

Anti-Hypertensive Medications

Please unscramble the words below

1. IONEIDCNL _____
2. LPAEYOHTDM _____
3. EVOILCDRLA _____
4. TEOALONL _____
5. RELMOOTOPL _____
6. OAPOROPLNL _____
7. IEITZADML _____
8. EARVAIPLM _____
9. EEIPNDNFII _____
10. NILIOEDPMA _____

SITUATION: On the second day of hospitalization, the physician decided to change the hypertensive client's medications and prescribed Angiotensin-Converting Enzyme (ACE) Inhibitors. Find in the puzzle examples of ACE inhibitors. You should be able to find 10 medications.

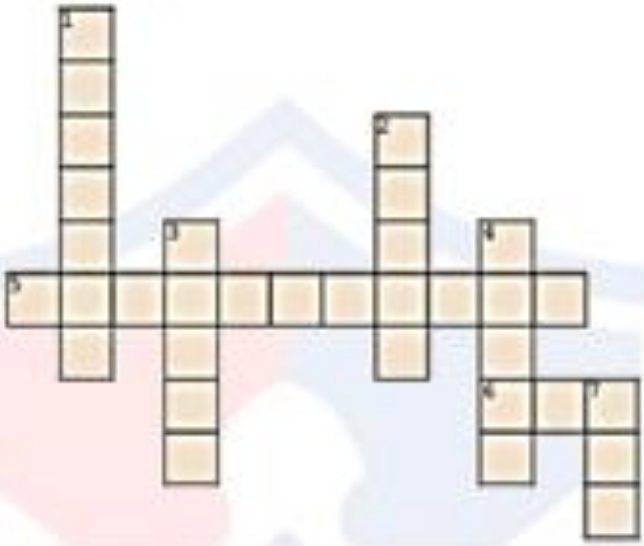
ACE INHIBITORS

A	T	R	L	H	Q	E	N	A	L	A	P	R	I	L	L	C	V
O	Z	A	I	J	R	B	R	A	M	I	P	R	I	L	V	A	S
E	R	P	S	L	J	L	G	M	R	V	R	V	I	W	V	P	X
O	D	C	I	G	D	J	V	K	O	W	U	V	U	S	L	T	J
O	P	P	N	K	T	B	A	T	E	Q	Z	D	P	W	J	O	K
I	H	R	O	I	N	N	M	O	E	X	I	P	R	I	L	P	T
V	J	T	P	S	Z	G	V	Q	E	K	J	Q	Z	G	H	R	S
C	L	Y	R	C	F	O	S	I	N	O	P	R	I	L	E	I	I
Z	T	W	I	J	T	R	A	N	D	O	L	A	P	R	I	L	H
P	H	B	L	A	G	S	Q	U	I	N	A	P	R	I	L	U	Q
P	E	R	I	N	D	O	P	R	I	L	H	K	T	P	L	S	F
J	W	J	Q	C	G	B	E	N	A	Z	E	P	R	I	L	F	D

BENAZEPRIL
CAPTOPRIL
ENALAPRIL
FOSINOPRIL
LISINOPRIL
MOEXIPRIL
PERINDOPRIL
QUINAPRIL
RAMIPRIL
TRANDOLAPRIL

Anti-hyperlipidemics

Complete the crossword below



Across:

1. Statins have a _____ effect
2. Statins can increase _____

Down:

1. Statins can cause aching _____
2. Statins are toxic to the _____
3. Statins must be taken with sips of _____
4. Statins have to be taken at _____
3. Statins can decrease _____

Situation: The nurse is caring for a client with ischemic stroke, and anti-coagulants are prescribed. The nurse knows that examples of anti-coagulants are:

Uncramble each of the words. You should be able to identify 4 medications.

Additionally, in taking anti-coagulants, the nurse knows that he has to watch out for signs of _____. Take the letters that appear in ☐ boxes and uncramble them to know the answer.

MAUNICDO

REHPANI

NANORPAXEI

DINPOAREDA

B	L						G

SITUATION: Sildenafil (Viagra) is prescribed for a client diagnosed with erectile dysfunction. The nurse reviews the effects of the drug, knowing that is can cause the following side effects:

Unscramble the tiles to reveal

FL	FAC	IAL	ING	USH

MIL	D H	ACH	E	EAD

D I	MIL	N	GES	TIO	NDI

Drugs Acting on the Respiratory System

Encircle the correct choice.

(Bronchodilators / Brochoconstrictors / Vasoconstrictors/ Vasodilators) , or antiasthmatics, are medications used to facilitate respirations by dilating the airways. They are helpful in symptomatic relief or prevention of bronchial asthma and for bronchospasm associated with COPD.

(Sympathomimetics / Sympatholytics / Parasympathomimetics) are drugs that mimic the effects of the sympathetic nervous system. One of the actions of the sympathetic nervous system is dilation of the bronchi with increased rate and depth of respiration. Examples of the drugs are albuterol (Proventil), arformoerol (Brovana), bitolterol (Tornalate), ephedrine (generic), epinephrine (Epipen), formoterol (Foradil), indacaterol (Arcapta), isoetharine (generic), isoproterenol (Isuprel), levalbuterol (Xopenex), metaproterenol (Alupent), pirbuterol (Maxair), salmeterol (Serevent), and terbutaline (Brethaire).

(Leukotriene receptor antagonists / Leukotriene receptor agonist / Leukotriene receptor protagonist) are drugs that selectively and competitively block or antagonize receptors for the production of leukotrienes D4 and E4, components of slow-reating substance of anaphylaxis .

(mast cell makers/ Mast cell stabilizer / mast cell destabilizers)are drugs that works at the cellular level to inhibit the release of histamine (released from mast cells in response to inflammation or irritation) and the release of slow-reacting substance of anaphylaxis .

(Xanthines / caffeines/ chloroquines) are naturally occurring substances, including caffeine and theophylline, that have a direct effect on the smooth muscle of the respiratory tract, both in the bronchi and in the blood vessels.

Drugs Acting on the Gastrointestinal System

Categorize the correct information into the corresponding box. Place the number at the corresponding box.

Antacids	H2 Receptor blockers	Proton-pump inhibitors
Number/s : _____, _____,_____,_____	Number/s: _____, _____, _____	Number/s: _____,_____,_____

1. Cimetidine
2. Amphojel
3. Omeprazole
4. Milk of Magnesia
5. Maalox
6. Ranitidine
7. Pantoprazole
8. Given 1-3 hours after meals
9. Given 30 minutes before meals
10. Given with meals

The Anti-Infectives

Fill in the blanks using the words listed in the box.

_____ are chemicals used to inhibit the growth of specific bacteria or cause the death of susceptible bacteria.

The _____ are a group of powerful antibiotics used to treat serious infections caused by gram-negative aerobic bacilli. They inhibit protein synthesis in susceptible strains of gram-negative bacteria. These drugs are used to treat serious infections caused by susceptible strains of gram-negative bacteria,

including *Pseudomonas aeruginosa, E. coli, Proteus* species, and *Staphylococcus* species such as *Staphylococcus aureus.* These drugs are indicated for the treatment of serious infections that are susceptible to penicillin when penicillin is contraindicated, and they can be used in severe infections before culture and sensitivity tests have been completed.

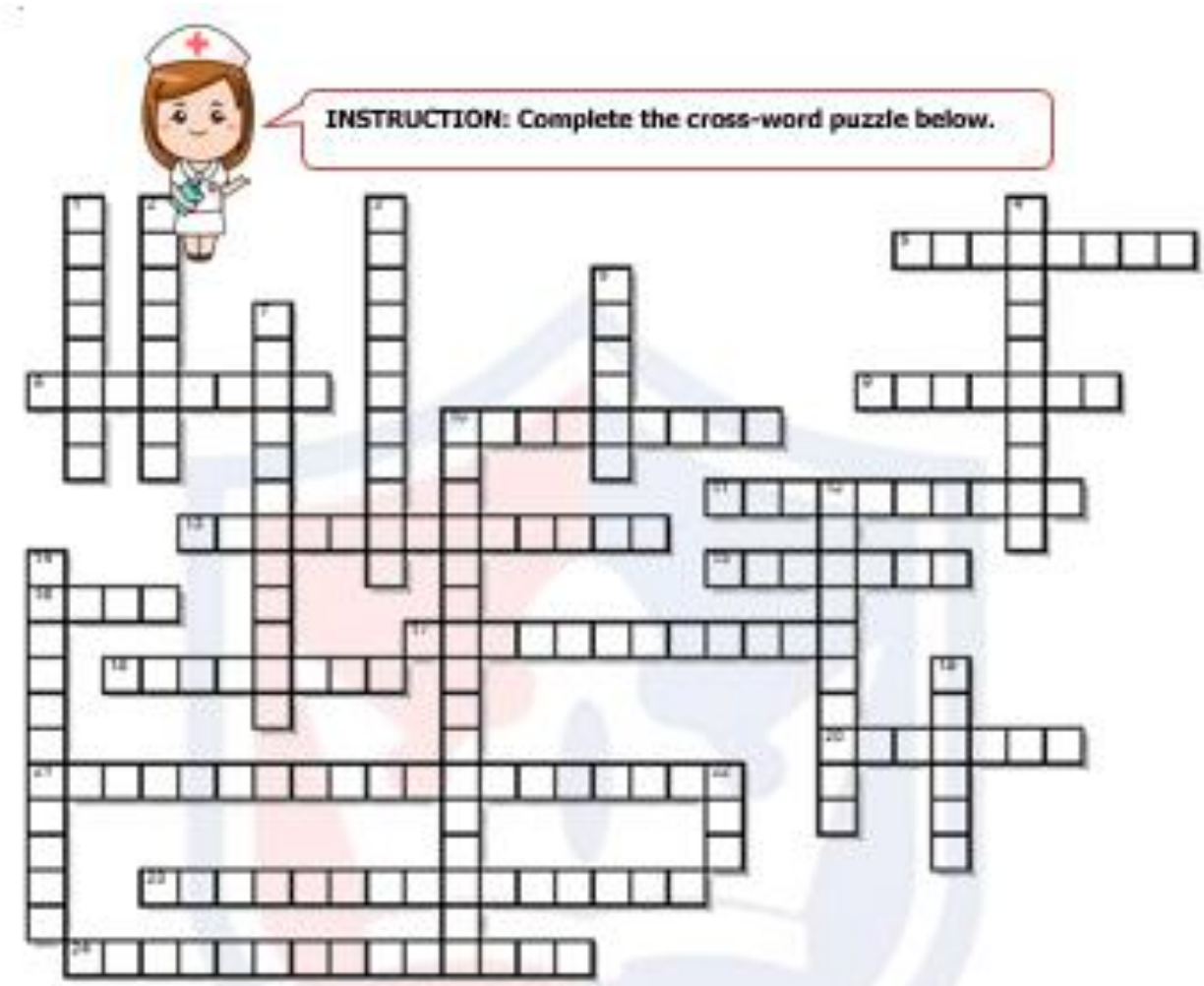
The _____ were first introduced in the 1960s. These drugs are similar to the penicillins in structure and in activity. Examples are Cefadroxil, Cefazolin, Cephalexin, Cefaclor, Cefoitin, Cefprozil, Cefuroxime, Cefotaxime, Cefpodoxime, Ceftazidime, cefepime, and Ceftaroline.

The _____ are a relatively new synthetic class of antibiotics with a broad spectrum of activity. These include ciprofloxacin (Cipro), which is the most widely used type; gemifloxacin (Factive), levofloxacin (Levaquin), moxifloxacin (Avelox), norfloxacin (Noroxin), and ofloxacin (Floxin, Ocuflox).

The _____ are antibiotics that interfere with protein synthesis in susceptible bacteria. Drugs include erythromycin (Ery-Tab, Eryc, and others), azithromycin (Zithromax), clarithromycin (Biaxin), and dirithromycin (Dynabac).

_____ cause a variety of conditions, ranging from warts, to the common cold and "flu", to diseases such as chickenpox and measles.

_____are released by the host in response to viral invasion of a cell and act to prevent the replication of that particular virus.



ACROSS	DOWN
5 Coats the ulcer (otherwise known as [illegible]) 8 Antidote for Digitalis toxicity 9 Drug of choice for Osteoporosis 10 Antidote for Heparin toxicity (bleeding) 11 Potentiates hypotension to patients taking Calcium-channel blockers 13 shifting from one uncompleted activity to another 15 A cardiovascular medication that has (+) inotropic and (-) [illegible] effect 16 route of choice for administering Coumadin 17 Do not use in children under 8 years old. Causes Enamel hypoplasia and tooth discoloration 18 Involuntary muscular movements of face, arms, legs [illegible] as a result of taking antipsychotic medications. 20 An antineoplastic agent that is considered as "bladder toxic" 21 A fatal effect of Beta Adrenergic blockers, not recommended 23 Side effect of Antidepressants resulting to dry mouth 24 An adverse effect of HMG-CoA [illegible] inhibitors, which results in skeletal muscle breakdown and muscle weakness	1 Neutralizes the stomach acids 2 A urinary analgesic that is prescribed to decrease pain upon urination 3 Patient stops taking the medication for a period of time as advised by the physician 4 A drug that can lead to complication called "Red Man Syndrome" (continuous rashes and facial flushing) 6 Antidote for [illegible] bleeding 7 usual side effect of [illegible] hydroxide ([illegible]) 10 A common side effect of a[illegible] ([illegible]) 12 An anti-gout medication that promotes uric acid excretion 14 An antitumor antibiotic that is considered as "cardio-toxic" 19 Irrational fear of something that poses little or no risk of danger 22 An adverse effect of antipsychotic medications, accompanying hyperpyrexia, decreased level of consciousness, restlessness, and muscle stiffness.

ACTIVITY # 20.1: 4 Medications : 1 Classification

Guess what specific type of antibiotic fits with the theme of the medications presented.

Gentamycin	Amikacin
Neomycin	Streptomycin

1. A _ I _ O _ _ _ _ _ _ _ _ E

Amoxicillin	Ampicillin
Oxacillin	Ticarcillin

2. _ E _ I _ _ _ _ _ N

Cephalexin	Cefuroxime
Ceftriaxone	Cefepime

3. _ E _ H _ _ _ _ _ _ _ _ N

Demeclocycline	Doxycycline
Tigecycline	Meclocycline

4. _ E _ R _ _ Y _ _ _ _ _

Azithromycin	Clarithromycin
Erythromycin	Spiramycin

5. _ _ _ R _ _ I _ _

Ciprofloxacin	Ofloxacin
Norfloxacin	Trovafloxacin

6. _ _ _ _ _ _ _ N E

Situation: The nurse is having a review regarding the commonly prescribed antibiotics in their institution. Find examples of antibiotics in the puzzle. (See the list below.)

Antibiotics

G	E	T	X	A	S	T	R	E	P	T	O	M	Y	C	I	N	C
E	C	R	B	Z	L	A	M	P	I	C	I	L	L	I	N	F	E
N	E	E	Y	I	A	T	O	B	R	A	M	Y	C	I	N	T	F
T	F	U	P	T	H	C	E	F	U	R	O	X	I	M	E	N	T
A	E	Y	T	H	H	D	O	X	Y	C	Y	C	L	I	N	E	R
M	P	C	E	R	A	R	O	X	A	C	I	L	L	I	N	O	I
I	I	M	P	O	T	L	O	N	G	X	W	A	R	Q	M	M	A
C	M	R	A	M	Q	F	E	M	U	P	Z	H	E	C	Y	Y	X
I	E	E	Y	Y	T	S	S	X	Y	Q	X	Q	G	D	D	C	O
N	D	E	P	C	J	G	S	P	I	C	T	V	J	M	E	I	N
A	M	O	X	I	C	I	L	L	I	N	I	W	X	H	M	N	E
O	K	G	D	N	A	M	I	K	A	C	I	N	N	U	M	J	A

STREPTOMYCIN
AZITHROMYCIN
ERYTHROMYCIN
CEFTRIAXONE
DOXYCYCLINE
AMOXICILLIN
TOBRAMYCIN
CEFUROXIME
CEPHALEXIN
GENTAMICIN
AMPICILLIN
OXACILLIN
AMIKACIN
NEOMYCIN
CEFEPIME

The Chemotherapeutic Agents

Match the information given at the left box to the corresponding box at the right.

Life cycle of a cell, which include the phases G0, G1, S2, G2 and M: during the M phase, the cell divides into two identical daughter cells	Osmosis
Movement of solutes from an area of high concentration to an area of low concentration across a concentration gradient	Cell cycle
Movement of water from an area of low solute concentration to an area of high solute concentration in an attempt to equalize the concentrations	Diffusion

Place the drugs under the corresponding category of Chemotherapeutic agents

Alkylating Agent	Antimetabolites	Plant alkaloids	Antitumor Antibiotics

Categorize the following drugs according the specific agent it belongs to.

isplatin

Methotrexate

Vincristine

Bleomycin

Cytoxan

Vinblastine

Busulfan

Fluoro-uracil

Complete the puzzle by determining which chemotherapeutic drug has the side effect/s listed below

Chemotherapy

Across

3. Side effect: alopecia, stomatitis, hyperuricemia, hepatotoxicity

4. Side effect: pulmonary fibrosis

5. Side effect: alopecia, gonadal supression, nephrotoxicity

6. Side effect: neuropathy, neurotoxic, numbness, paresthesia, constipation, phlebitis at IV site

7. Side effect: pulmonary fibrosis

Down

1. Side effect: alopecia, stomatitis, diarrhea, photosensitivity

2. Side effect: irreversible cardiomyopathy

5. Side effect: conjunctivitis wth high doses

Tyramine Rich Food

R	G	C	Y	S	F	P	C	H	O	C	O	L	A	T	E	N	Y
F	E	R	M	E	N	T	E	D	B	E	E	R	R	B	S	S	T
Z	J	I	E	Z	V	N	Y	D	S	G	R	Q	X	K	A	Q	Z
B	X	U	Y	Q	V	N	I	J	B	R	A	O	C	B	L	S	P
M	H	A	B	H	S	M	O	K	E	D	H	A	M	Z	A	G	U
T	O	G	K	W	W	T	X	R	J	O	X	H	Y	J	M	R	Y
T	F	X	R	A	I	S	I	N	S	D	V	V	R	D	I	P	T
V	Q	I	A	G	E	D	C	H	E	E	S	E	I	Y	U	N	B
J	C	C	S	T	A	V	O	C	A	D	O	N	A	G	J	U	T
B	Y	O	G	U	R	T	L	S	B	K	N	F	X	Q	H	H	Z
D	D	Q	B	X	Z	C	F	L	K	B	A	N	A	N	A	D	I
W	P	O	D	R	C	U	R	E	D	M	E	A	T	R	W	F	R

Find the following words in the puzzle.

AGED CHEESE	CURED MEAT	SMOKED HAM	AVOCADO
FERMENTED BEER	BANANA	SALAMI	RAISINS
YOGURT			