

S.No	Time (mnts)	Specific objectives	Content	TEACHING & LEARNING ACTIVITY	A.V. AIDS	EVALUATION
1	2	To introduce the pressure	<p>Introduction- pressure is the force on a unit surface area.</p> <p>The pressure exerted by fluids is called fluid pressure.</p> <p>In medical practice, the most common method of indicating the pressure is by the height of a column of mercury</p>	Teaching – student teacher introduce the topic.	Black board	What is pressure?
2	2	To enumerate importance of pressure	<p>Importance of pressure in human body-</p> <ul style="list-style-type: none"> • Normal breathing • Effectiveness of enema and other irrigations depends on pressure. • Many body functions depends on fluid pressure. 	<p>Teaching – lecture cum discussion and enumerate importance of pressure.</p> <p>Learning – students are listening actively and making notes</p>	Black board	enumerate importance of pressure?

3	3	To comprehend atmospheric pressure and its applications	<p>ATMOSPHERIC PRESSURE- above the earth surface there is vast quantity of air which is a mixture of many gases, the atmosphere, i.e air surroundings, that exists mass and weight. The weight of atmosphere exerts a force on the surface of every object on or near the surface of the earth which is known as atmospheric pressure.</p> <p>Instrument for measuring the atmospheric pressure is called barometer.</p> <p>Applications :</p> <ul style="list-style-type: none"> • In controlled suction for removing of fluid. • Water seal drainage • Suction apparatus for drainage. 	<p>Teaching – lecture cum discussion and comprehend atmospheric pressure.</p> <p>Learning – students are listening actively and making notes</p>	Black board	comprehend atmospheric pressure and its applications?
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4	4	To describe hydrostatic pressure and its applications	<p><u>HYDROSTATIC PRESSURE-</u> Hydrostatic pressure is the pressure that is exerted by a fluid at equilibrium at a given point within the fluid, due to the force of gravity. Hydrostatic pressure increases in proportion to depth measured from the surface because of the increasing weight of fluid exerting downward force from above.</p> $P = HDG$ <p style="text-align: right;">P= pressure H= height D= density G= gravity</p> <p>It is discovered by pascal.</p> <p><u>Applications :</u></p> <ul style="list-style-type: none"> • In the use of water mattresses to prevent bed sores. • To avoid unequal pressure to foetus by means of amniotic fluid. • In sphygmomanometer. • In capillary circulation 	Teaching – lecture cum discussion and describe hydrostatic pressure. Learning – students are listening actively and making notes	Flash card	describe hydrostatic pressure and its applications?
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5	5	To explain osmotic pressure and its applications	<p><u>OSMOTIC PRESSURE:</u></p> <p>Osmotic pressure is the minimum pressure which needs to be applied to a solution to prevent the inward flow of water across a semipermeable membrane.^[1] It is also defined as the measure of the tendency of a solution to take in water by osmosis. Potential osmotic pressure is the maximum osmotic pressure that could develop in a solution if it were separated from distilled water by a selectively permeable membrane.</p> <p>The osmotic pressure of solution is proportional to the concentration of the solute particles.</p> <p><u>Applications:</u></p> <ul style="list-style-type: none"> • Maintaining normal fluid content at the capillary level. • Sometimes to treat cerebral edema. • For treating dehydration by using hypotonic solution. • In dialysis. 	<p>Teaching – lecture cum discussion and explain osmotic pressure.</p> <p>Learning – students are listening actively and making notes</p>	Flash card & Black board	explain osmotic pressure and its applications?
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6	6	To comprehend arterial pressure and its measurement	<p><u>ARTERIAL PRESSURE:</u> Arterial blood pressure is defined as the lateral pressure exerted by the column of blood on wall of arteries. The pressure is exerted when blood flows through the arteries. Generally, the term ‘blood pressure’ refers to arterial blood pressure. Arterial blood pressure is expressed in four different terms:</p> <ol style="list-style-type: none"> 1. Systolic blood pressure 2. Diastolic blood pressure 3. Pulse pressure 4. Mean arterial blood pressure. <p><u>Measurement:</u> Apparatus used to measure blood pressure in human beings is called sphygmomanometer. Along with sphygmomanometer, stethoscope is also necessary to measure blood pressure.</p> <p><u>Principle</u> When an external pressure is applied over the artery, the blood flow through it is obstructed. And the pressure required to cause occlusion of blood flow indicates the pressure inside the vessel.</p>	Teaching – lecture cum discussion and comprehend arterial pressure. Learning – students are listening actively and making notes	Black board	comprehend arterial pressure and its measurement?
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7	6	To describe venous pressure and its measurement	<p><u>VENOUS PRESSURE:</u></p> <p>Venous pressure is the pressure exerted by the contained blood in the veins.</p> <p>The pressure in vena cava and right atrium is called central venous pressure. It indicates mean venous pressure and is frequently used as an estimate of right ventricular preload.</p> <p>The pressure in peripheral veins is called peripheral venous pressure.</p> <p>Pressure is not same in all the veins. It varies in different veins in the extremities of the body and also varies from central veins to peripheral veins.</p> <p><u>Measurement of CVP:</u></p> <p>The CVP can be measured either manually using a manometer or electronically using a transducer.</p> <p>In either case the CVP must be zeroed at the level of right atrium.</p> <p>Placement – this is usually taken to be the level of 4th intercostals space in the mid axillary line while patient in supine position. Each measurement should be taken at this same zero position.</p>	<p>Teaching – lecture cum discussion and describe venous pressure.</p> <p>Learning – students are listening actively and making notes</p>	Flash card & Black board	describe venous pressure and its measurement?
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8	6	To explain IOP and its measurement	<p>INTRAOCULAR PRESSURE: Intraocular pressure (IOP) is the fluid pressure inside the eye. Tonometry is the measurement of tension or pressure within the eye. A tonometer is an instrument for measuring tension or pressure. IOP is an important aspect in the evaluation of patients at risk from glaucoma.^[4] Most tonometers are calibrated to measure pressure in millimeters of mercury (mmHg).</p> <p>Measurement of ocular pressure:</p> <ul style="list-style-type: none"> a) Applanation method – it measures the intraocular pressure either by a force required to flatten a constant area of the cornea. (Goldman tonometry) or by a constant force. b) Dynamic contour tonometry: DCT uses principle of contour matching instead of applanation. c) Pneumotonometry: it utilizes a pneumatic sensor. 	<p>Teaching – lecture cum discussion and explain IOP. Learning – students are listening actively and making notes</p>	Flash card & black board	explain IOP and its measurement?
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9	6	To comprehend ICP and its measurement	<p>INTRACRANIAL PRESSURE:</p> <p>Intracranial pressure (ICP) is the pressure inside the skull and thus in the brain tissue and cerebrospinal fluid (CSF). ICP is measured in millimeters of mercury (mmHg) and, at rest, is normally 7–15 mmHg for a supine adult.</p> <p>The body has various mechanisms by which it keeps the ICP stable, with CSF pressures varying by about 1 mmHg in normal adults through shifts in production and absorption of CSF.</p> <p>Changes in ICP are attributed to volume changes in one or more of the constituents contained in the cranium.</p> <p>CSF pressure has been shown to be influenced by abrupt changes in intrathoracic pressure during coughing (intraabdominal pressure), Valsalva maneuver, and communication with the vasculature(venous and arterial systems).</p> <p><u>Measurement of ICP:</u></p> <ol style="list-style-type: none"> 1. <u>Non- invasive method:</u> <ul style="list-style-type: none"> • clinical deterioration in neurological status • manual feeling the craniotomy flap or skull defect, if any, gives clue. 2. <u>Invasive method:</u> <ul style="list-style-type: none"> • Intraventricular monitoring 	Teaching – lecture cum discussion and comprehend ICP. Learning – students are listening actively and making notes.	Flash card & Black board	comprehend ICP and its measurement?
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10	3		<p><u>Summary –</u> Pressure is the force exerted on unit area. Atmospheric pressure is the pressure of atmosphere on surface of the earth. Hydrostatic pressure is the pressure of fluid at a given point. Osmotic pressure exerted by the solute to restrict the transfer of solvent through semipermeable membrane. Arterial and venous pressure are pressure exert by artery and vein respectively. IOP is the fluid pressure in the eye and ICP is the pressure in the cranium.</p>	Teaching – student teacher summarize the topic		
11	2		<p><u>Conclusion –</u> So the measurement of these pressure provide comprehensive review of the functioning of their respective system. And any alteration gives information about the dysfunctioning of that system.</p>	Teaching – student teacher conclude the topic.		

ASSIGNMENT: Make an assignment on application of the principles of these pressures in nursing and submit on 2-04-2020

BIBLIOGRAPHY:

1. Sharma s. k., biophysics inn nursing, pressure, 1st edition, jaypee publication, 99-116.
2. Sembulingam p. , essentials of medical physiology, arterial pressure, 6th edition, jaypee publication, 602-604.

3. www.wikipedia.com