



SNS COLLEGE OF ALLIED HEALTH SCIENCES
SNS Kalvi Nagar, Coimbatore - 35
Affiliated to Dr MGR Medical University, Chennai



DEPARTMENT OF CARDIO PULMONARY PERFUSION CARE
TECHNOLOGY

COURSE NAME : PRINCIPLES OF PERFUSION PART 1

2ND YEAR

TOPIC : OCCLUSION SETTINGS



OCCLUSION SETTINGS



- Roller pump occlusion should be set before bypass, to ensure accurate delivery of systemic blood flow.
- The degree of compression is determined by the **separation region between the rollers and the backing plate**, it is set by adjusting the distance between the raceway and each of the roller heads.
- The occlusion must be properly set, **to minimize hemolysis and prevent backflow** through the roller head.



Greater degree of occlusion



- Increased hemolysis
- Spallation
- Excessive tubing wear



Too little occlusion



- Increased hemolysis due to the presence of a large area between the pump head and the backing plate that causes a rapid regurgitate backflow causing large velocity gradients and excessive red blood cell shear stresses .
- Decreased forward flow to the patient.



1: Occlusion of the arterial pump if a roller pump is used:



First method: Fluid – Drop method

- A. Close the sampling ports and any re-circulating lines.
- B. Hold the distal arterial line vertically .
- C. Advance a column of priming approximately 30 cm above the level of the pump.
- D. Deocclusion of (Removal the previous occlusion) the rollers by moving the rollers away from the backing plate to ensure there are no excessive occlusion .
- E. Adjusting roller occlusion against the backing plate to allow slight drop of fluid at a rate less than 1 cm /min. The occlusion should be set to each roller separately (one by one), If one of the rollers in the pump head does not yield the same rate of fluid drop (underocclusion), the occlusion should be set to the roller that is tightest.



Second method: Pressure – Drop Method

- A. Clamp the arterial line and any re-circulating lines and close the sampling ports .
- B. Turn the pump carefully until the pressure on the gauge is around 300 mmHg.
- C. Observe the rate of pressure drop.
- D. Tighten the occlusion until there is no drop of pressure in this pressure range (Ensure that there are no other leaks in the circuit and that all clamps are competent).
- E. Adjust the occlusion until the drop off of the pressure over the lower 260–280 mmHg range takes approximately 10 seconds.
- F. The occlusion should be set to each roller individually. If the occlusion between both rollers is clearly unequal, the pump should be changed.



2: Occlusion of the suction pumps:



- A. A clamp is placed on the tubing on the inlet side of the sucker roller pump and gradually occlude the rotating rollers until the silicone tubing within the pump head is collapses.
- B. Decrease the occlusion until the vacuum is cleared.
- C. The occlusion setting is then again increased, until the vacuum is just drawn and held.



THANK YOU