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Background: Manual or device compression following transradial intervention (TRI) has been performed to achieve successful hemostasis without ischemic insult in the hand was largely depending on personal experience. There has been no attempt in deciding strength and duration of compression by an objective guidance. We investigated the mean O₂ saturation for optimal compression strength following TRI for successful hemostasis. **Methods:** A total of 201 pts underwent TRI between Mar 2009 to Oct 2011 were enrolled. We measured the O₂ saturation at bedside by pulse oxymeter before and during the radial compression and measured the maximum O₂ saturation for successful hemostasis without ischemic insult in the hand. **Results:** The baseline characteristics showed that male was in 70.1%, mean age 63.7 ± 10.6 years old, acute myocardial infarction (AMI) 30.8%, ST-segment elevation myocardial infarction (STEMI) 10.4%, hypertension 61.6%, diabetes 29.3%, hyperlipidemia 17.9%, current smoker 33.3% and mean LV Ejection Fraction (LVEF) 56.4 ± 7.63. Overall procedural success rate in TRI was 99.5% (200/201). Mean O₂ saturation before compression were 98.21% ± 2.2% and during the compression were 96.02% ± 2.8% and the difference between the two values were 2.18% ± 2.0% (p<0.001). **Conclusion:** Optimal O₂ saturation for successful hemostasis without ischemic insult during the radial compression following TRI was 96% and pulse oxymeter guided radial compression was safe and effective.