Correlation of pulmonary capillary wedge pressure with left atrial pressure in patients with mitral stenosis before and after balloon mitral valvotomy

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Background: Simultaneous measurement of left atrial pressure (LAP) and left ventricular diastolic pressure (LVDP) is the ideal method for determination of transmitral gradient in patients with mitral stenosis (MS). Since transseptal catheterization is associated with inherent risks, many invasive laboratories have been using pulmonary capillary wedge pressure (PCWP) instead of LAP. There are conflicting reports on the correlation between PCWP and LAP. Most of these studies had relatively small sample size.

We sought to evaluate the correlation between PCWP and LAP and to compare transmitral gradients obtained with LAP and PCWP in MS, before and after balloon mitral valvotomy (BMV).

Methods: Consecutive patients with MS for BMV were included in this prospective cohort study. Simultaneous PCWP and LAP were recorded followed by simultaneous left atrium-left ventricular (LA-LV) and pulmonary capillary wedge pressure-left ventricular (PCWP-LV) gradients before and after BMV.

Results: There were 30 patients with a mean age of 41 (males 10 (33.3%), females 20(66.7%)).There was no significant difference between mean LAP and mean PCWP before BMV (21.3 mm Hg and 22.3 mmHg respectively) or after BMV (15.3 mmHg and 17.3 mmHg respectively).There was good correlation between mean PCWP and mean LAP before BMV ($r = 0.95$) ($p<0.001$) and after BMV ($r = 0.85$) ($p<0.001$). The phasic components of the pressures (a and v waves) of LAP and PCWP also showed good correlation before and after BMV. Furthermore, transmitral gradients assessed by LA-LV and PCWP-LV pressures showed excellent correlation before BMV ($r = 0.95$) ($p<0.001$) and after BMV ($r = 0.95$) ($p<0.001$).

Conclusion: In patients with MS, PCWP shows good correlation with LAP. Transmitral gradients obtained with PCWP and LAP also correlate well after correction of phase lag in PCWP tracing. Hence PCWP can be used for reliable measurement of transmitral gradient.

Bronchial artery embolization for moderate to massive hemoptysis

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Background: Hemoptysis is a common emergency coming to the pulmonary medicine and general Medicine department. Massive hemoptysis has high mortality even with surgery. Bronchial artery embolization is an effective alternative to surgery for controlling hemoptysis, with high success rate.

Methods: 74 consecutive patients coming to our hospital with moderate to severe hemoptysis were subjected to bronchial artery embolization (BAE). Femoral arterial puncture was the commonest approach. Some patients, where the culprit vessel was arising from subclavian artery, were approached from radial artery puncture. All patients were embolized with poly vinyl alcohol particles.

Results: Out of 74 patients, 54 were male and 20 were female. The mean age was 46.67±14.58 yrs. Cause of hemoptysis was tuberculosis in 64 patients, bronchiectasis in two, aspergillosis in two and in six the cause was not known. Total 192 vessels were embolized, 86 bronchial, 43 from subclavian, 53 intercostals and 20 internal mammaries.

Within one year, recurrence occurred in 13 patients three of whom died. In 9 patients, the bleeding was controlled with repeat BAE.

Conclusion: Commonest cause of hemoptysis was pulmonary tuberculosis. BAE had initial success of 100%. Recurrence occurred in 13 (17.56%) patients. Repeat BAE was successful in majority of these. 3 patients died of recurrent hemoptysis.

Fractional flow reserve guided percutaneous coronary intervention in patient of acute coronary syndrome with intermediate lesion: Immediate & long term follow up

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Background: Coronary angiography is the standard method for guiding the placement of the stent, still decision making in borderline lesion sometimes become difficult. Coronary pressure-derived fractional flow reserve (FFR) is an invasive index used to identify a stenosis responsible for reversible ischemia. Though borderline looking lesion may be physiologically significant, that can be identified very well by FFR. In our study we followed the 20 patient with borderline lesion on conventional angiography which turned significant on FFR & subjected to FFR guided PCI. We tried to evaluate its immediate results in term of safety and long term results in terms of MACCE.

Methods: This is an observational study conducted during the period of 2011 to 2013 in which we selected 20 patients with acute coronary syndrome having intermediate lesion(>50% but < 70%) on angiography.

These patients were evaluated with FFR to see the functionally significant lesion (FFR< 0.75). Based on this data they were subjected to coronary stenting along with optimal medical treatment and followed for mean period of18 months on OPD basis and with frequent telephonic contact.

Results: In our study, we enrolled 20 patients; 13 males & 7 female. Post procedural groin haematoma occur in one patient managed conservatively. Mean time of ICCU hospitalization was 29 hrs following procedure with 0% periprocedural MACCE.

At the mean follow up of 18 months event rate was 10% (only 2 patient one with ST elevation MI required revascularisation and other with SCD), otherwise all the patient were stable with medical therapy.

Conclusion: FFR guided PCI in patient with ACS is safe procedure without any periprocedural MACCE. Long term follow up (18 months) of patient of FFR guided PCI is also good with MACCE of 10% at our institute which replicate that of FAME study. So for decision making in borderline lesions, FFR is very useful to know its functional significance with good immediate safety & long term results in term of MACCE rate.