Rotaheart MCQs

**Vascular calcification**

1. is quite different to trabecular skeletal bone formation
2. is easily quantified by CT scanning which offers some correlation with mortality
3. is more common in populations with a high calcium diet
4. is equally common in men and women aged 70 years and above
5. is reduced by long term statin therapy

**ANSWER:2) CT scanning is in routine clinical use.**

**Vascular calcification is remarkably similar to trabecular skeletal bone formation.**

**Dietary calcium has surprisingly little influence on vascular calcification. Vascular calcification is more common in men than women**

**Trials with statins have shown little or no effect on vascular calcification**

**Imaging coronary artery calcification**

1. CT scanning has made routine coronary angiography obsolete
2. Modern X-ray imaging allows sufficient detail of coronary calcification to plan interventional strategy
3. Intravascular ultrasound gives detailed anatomical information in calcific arteries and can dictate strategy
4. Optical coherence tomography is yet to find a role in the management of calcific coronary disease
5. Post coronary stenting, intravascular imaging is mandatory in heavily calcified arteries to ensure adequate stent expansion.

**ANSWER 3). IVUS is very useful in planning strategy for intervention of the calcific artery.**

**CT scanning has made rapid advances, but ironically the calcification it can easily detect hampers the accurate assessment of intracoronary obstruction.**

**Xray imaging is very good allowing identification of coronary calcium but lacks sufficient detail to determine coronary obstruction.**

**OCT is sensitive and specific and frequently used in determining coronary strategy.**

**IVUS can be useful post stenting for clarification, but it is not mandatory.**

**The following can be said of rotational atherectomy**

1. it ablates all plaque morphologies not just calcific material
2. the debris from the pulverized plaque is smaller than the size of a red blood cell (<1um)
3. debulking diseased coronary arteries with high burr to artery ratios reduces restenosis rates
4. It’s clinical use is dwindling due to high procedural complication rates and poor long term outcomes
5. Contemporary RA procedures has reduced complication rates to those of non-RA angioplasty cases

**ANSWER 1) All matter is ablated whatever it’s morphology.**

**The debris particles are larger than this (5um).**

**High burr to artery ratio strategies had no impact on reduscing the high restenosis rates identified with lower ratios.**

**It’s clinical use is increasing due to modern drug-eluting stents reducing the restenotic impact of RA..**

**The complication rates are lower then they were but are not in the region of non-RA cases.**

**The following is true of contemporary plaque modification with RA**

1. Heart block is inevitable with RA of a dominant RCA mandating placement of a temporary pacing facility
2. Perforation rates are no greater than non-RA angioplasty
3. The rotawire remains vulnerable to kinking and fracture
4. The ’stuck burr’ is a common complication even in the best hands
5. No reflow is minimized by big burrs at high speeds with long runs

**ANSWER 3) The wire remains vulnerable to kinking and fracture.**

**Temporary pacemakers are seldom required with contemporary techniques, perforation rates remain slightly higher than non-RA PCI. The stuck burr is an unusual complication. Small burrs at low speeds for short runs are best.**

**The following is true of RCTs involving RA**

1. there is a clear benefit to patients undergoing RA with in stent restenosis
2. Routine RA prior to DES placement in calcific lesions reduces 6 month MACE
3. Complications are more frequent with higher burr:artery ratio strategies
4. There are no trials where the RA group was inferior to the non-RA group
5. A consistent finding in all RA trials is that patients with renal failure benefit from RA prior to stent placement.

ANSWER 3). High burr:artery ratio strategies increased complications.

The use of RA for ISR had conflicting results in the 2 main trials, but overall it has little impact. The main trial investigating routine RA in calcific lesions prior to DES was negative (ROTAXUS).

There are many trials where the RA group proved inferior. Again there is no data to support the routine use of RA in patients with renal failure.