

ANAESTHESIA AND HYPERTENSIVE DISEASE

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In Pakistan hypertensive disease affects about 40% of adults over 45 years of age and is a major risk factor for coronary disease, congestive heart failure, peripheral and cerebrovascular disease. While theories abound about its aetiology, the pathogenesis of essential hypertension is more defined. Hypertrophy of arteriolar smooth muscles and an adaptive hypertrophy of the left ventricle give rise to altered hemodynamic responses to adrenergic stimulation and electrophysiologic instability. Dysfunction of the cardiac baroreceptor reflex has also been described and the net effect of these abnormalities is significant circulatory instability observed during surgery and anaesthesia, while stroke volume is normal or increased in early hypertension. As the disease progresses diastolic compliance may become severely limited and cardiac output may eventually decrease.

Classical scoring systems as the Goldman multi-risk index for predicting adverse outcomes following surgery have often failed to identify hypertension as a significant risk factor unless it is severe. More recent studies during major non-cardiac surgery have produced conflicting evidence about its role, but in the area of vascular surgery, hypertension emerges as an independent risk factor for postoperative adverse cardiac events.

Hypertensive patients, even when controlled with antihypertensive medication, and without coronary artery disease, may suffer frequently from silent myocardial ischaemia (SMI), both during exercise and normal activities. The development of SMI is more common in poorly controlled hypertensives and in those with left ventricular hypertrophy (LVH). This category of patients is also more prone to supra-ventricular and ventricular arrhythmias. As such LVH represents the most significant end organ disease impacting on anaesthetic practice. LVH in hypertension is normally concentric but the risk of ischaemia is greatest in those with a more severe predominantly basal hypertrophy. While intra-operative ischaemia in hypertensives is associated with periods of intense sympathetic activity, patients with LVH may also be at higher risk during hypotension. Diagnosis of LVH is not straightforward however. Electro-

cardiographic diagnosis has a sensitivity of about 50% while echocardiography is about 95% sensitive. White-coat hypertension once thought of as relatively insignificant, is no longer seen as a benign condition but carries many of the risks of ischaemia associated with essential hypertension. Intra-operative ischaemia and arrhythmias are common in mild hypertensives and is related to periods of peak surgical stimulation and emergence from anaesthesia. Pre-administration of a B-blocker appears to reduce the incidence of this complication.¹ Controlled hypertension is also associated with a greater risk of postoperative SMI compared to normotensive patients (odds ratio 2.58) and on-admission blood pressure reading may be an important predictor of this complication.² The evidence for an association between perioperative SMI and both in-hospital cardiac events and long term survival is strong. When it occurs within 48 hours of surgery, the chances of an in-hospital adverse event is increased 9-fold while the risk of dying within the subsequent 2 years is doubled.³

Left ventricular dysfunction as a result of progressive hypertensive disease is an additional area of concern to anaesthetists. When defined as an ejection fraction (EF) <30%, it occurs in about 2.9% of the adult population, half of whom are asymptomatic. The combination of hypertension and ischaemic heart disease is a strong predictor of this condition, occurring in 56% of cases and with an odds ratio of 14.2.⁴ Conventional wisdom suggests that hypertensive drugs be continued until the day of surgery, as this appears to improve circulatory stability. Episodes of profound post-induction hypotension in patients treated with angiotensin converting enzyme inhibitors has led some to suggest that these drugs be discontinued prior to surgery. With the possible exception of B-blocking drugs, anti hypertensives alone don't afford adequate protection against perioperative circulatory instability and arrhythmias. While the use of adjunctive B-blockade is an accepted practice, new evidence suggests that α -2 agonists such as clonidine may have a role in facilitating postoperative stability by improving the function of the cardiac baroreceptor reflex. The challenge for the future is to identify those patients with hypertension, and to employ more strenuous methods of improving circulatory stability and

reducing risks of perioperative myocardial ischaemia. Hypertension particularly if complicated by LVH or symptomatic ischaemic heart disease increases the risk of adverse outcomes. Targeting of resources to improve postoperative management will make surgery safer for this group of patients undergoing major surgery

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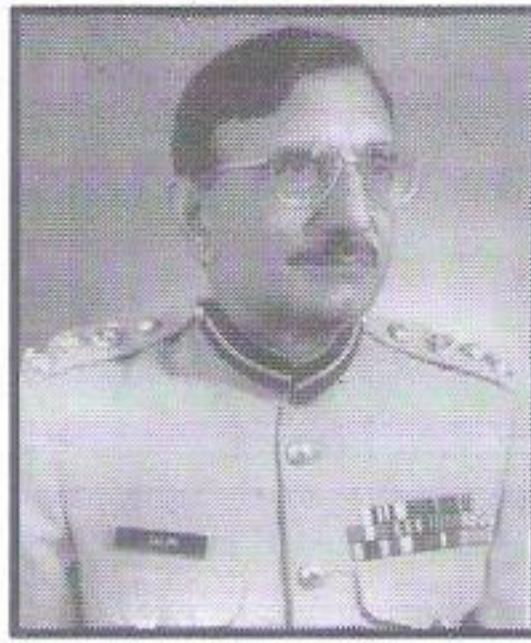
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Brig. M. Salim (retired) is a highly qualified and eminent scholar in the anaesthesia and pain circles. He has acquired all the academic diplomas in anaesthesiology from Pakistan, and he is a fellow of Royal College of Anaesthetists, England. He was awarded a diploma in acupuncture by Chinese authorities. He has been dean of faculty of anaesthetists, CPSP. He remained Advisor in anaesthesiology, and contributed a lot towards establishment of the specialty of anaesthesiology in armed forces. Presently he is a Professor of anaesthesiology in Islamic International Medical College.

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USG AFTER/BEFORE MARRIAGE?

A young lady reported to surgical OPD with her husband. She developed pain in her right hypochondrium after a few weeks of her marriage. The surgeon examined her, got her ultrasonography done, and offered surgery for her cholelithiasis (gall stones). The husband was visibly disappointed at this news.

In a ligh mood, the surgeon commented, "You should have done her ultrasonography before marriage."

"The next time, I will get it done." The husband coolly replied.

AN INTERVIEW WITH AN ANAESTHETIST

"What do you do?"

"I am an anaesthetist"

"Are you serving in the same rank as your surgeon?"

"Yes, I am"

"Are you equally qualified as he is?"

"Yes, I am"

"Do you share equal responsibility for surgical patients as he does?"

"Yes, I do"

"Do you spend equal time with the surgical patient as your surgeon?"

"More than him".

"Do you draw equal pay and allowances as he does, for the job done for entitled patients?"

"Yes, I do."

"Are you paid equal to him for the civilian surgical patients?"

(Silence)

THE GRAY HAIR

A great surgeon was approached by a CNE patient with shoulder dislocation. The patient's father, who accompanied him, was too apprehensive.

"I hope it will be done safely, Sir?" he asked.

"Yes, Yes! You need not to worry." the surgeon replied.

"Hope there will be no complications?"

"No, the procedure is quite simple!"

"Will there be any dangers involved?"

"No! it is usually trouble free."

"Any risks of anaesthesia, Sir?"

"Some risk is always there, but we have good anaesthetists with us."

The father was still not satisfied, "And is the anaesthetist an experienced one?" He asked.

"He is with *all* of his hair turned grey". The surgeon replied.

