LETTER TO THE EDITOR

Dear Sir,

Why do my patients shiver after anaesthesia and is there anything that I can do for them?

A reader from Zimbabwe

Comment by Dr William English

Post-operative shivering, causes, prevention and treatment.

Shivering is a frequent occurrence in the post-operative period. The primary cause of post-anaesthetic shivering (PAS) is per-operative hypothermia secondary to anaesthetic induced inhibition of thermoregulation. This causes both cutaneous vasodilation and reduction in the thresholds for activation of vasoconstriction and shivering. In turn this results in redistribution of body heat from core to periphery with subsequent rapid hypothermia during anaesthesia. Shivering itself however may be associated with cutaneous vasodilatation, particularly in the context of post-operative pain.

Apart from causing discomfort and exacerbating post-operative pain, PAS has been shown to increase oxygen consumption, catecholamine release, cardiac output, heart rate, blood pressure and intra-ocular pressure.[1] It also commonly interferes with routine monitoring.

Studies have identified a host of different precipitating factors including male sex, duration of anaesthetic, spontaneous breathing techniques, the use of volatile agents and anticholinergic pre-medications.[1]

Whilst not all patients who shiver are hypothermic prevention of PAS mainly entails preventing per-operative heat loss. This can be achieved by a number of different techniques such as increasing the ambient temperature in theatre, using conventional or forced warm air blankets and using warmed intravenous fluids.

Whilst these methods may obviously continue to be employed in the recovery room, pharmacological agents are the most popular mode of treatment of PAS as well as having a prophylactic role.

The neurotransmitter pathways involved in the mechanism of PAS are complex and still poorly understood. There is evidence that opioid, alpha 2 adrenergic, serotenergic and anticholinergic systems are probably involved by virtue of the fact that drugs acting on these systems may be utilised in the treatment of the condition.

Some of the drugs validated in clinical trials in both the treatment and prophylaxis of PAS are shown in the table below together with the approximate doses. [2, 3, 4, 5]

Drug	Suggested Dose and Route	Role
Pethidine	0.35 mg/kg may repeat x 4 at 5 min. intervals iv	Treatment
Clonidine	0.15 mg iv	Treatment
Tramadol	1mg/kg iv	Treatment or Prophylaxis
Ondansetron	8mg iv	Prophylaxis

References

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