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Inducing high levels of carbon monoxide in a tent

To the Editor,

We were concerned to read the article by Thomassen and colleagues describing the intentional exposure of healthy subjects to carbon monoxide (CO) inside a closed space [1]. In their study conducted in Norway, 7 men sat inside a tent for 2 hours with a burning kerosene camping stove "to investigate if burning a cooking stove inside a tent is a potential health hazard."

As background in their article, the authors recognize that CO is formed whenever incomplete combustion of carbon fuels occurs. Furthermore, they describe an earlier report of 2 individuals dying of CO poisoning from using a cookstove in a tent [2]. In the present study, each subject was exposed for 120 minutes although continuous measurement of ambient CO concentrations revealed unsafe levels much earlier.

Emanuel et al have identified 7 requirements that must be satisfied for clinical research to be ethical [3]. This study clearly violates at least one of them, a favorable risk-benefit ratio. This requirement necessitates that risks to the subject are minimized and that they are proportionate to the benefits to the subject and society. At a minimum, the subjects' exposure in this case could have been discontinued much earlier based on the unsafe levels of CO detected before the planned experimental time had elapsed. Moreover, the subjects' presence and exposure was unnecessary to demonstrate that the stove would produce CO. The relationship between inhaled CO and carboxyhemoglobin concentration is well known; thus the objective of their study could have been achieved simply by monitoring the levels of CO in the tents [4]. Based on a recent CO poisoning treatment study, these subjects may now have a significant risk for long-term cognitive impairment [5].

Although the authors' local ethics committee approved the study, it does not meet accepted standards for ethical research. If unethical studies such as this are published, other investigators may be encouraged to pursue similar work and it may cause unnecessary harm to research participants.

References

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