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Hippocrates

Sterilize and disinfect, but how?

We have been sterilizing and disinfecting in office practice ever since Semmelweis, but how well? Reports of cross-infection where the process was not carried as assiduously as it might have been are not very common, perhaps because the relationship between cause and effect is easily missed and because the consequences as a rule are readily corrected with the help of antibiotics. Cases do, however, get into print, relating variously to needles used in medical routine [1] or in acupuncture [2], instruments such as sigmoidoscopes [3], or instruments employed in eye and ear examinations [4,5]. It is indeed noticeable that many of the reports are recent, relating to problems which have earlier been overlooked. All praise, then, to Douglas Drummond and Ann Skidmore in British Columbia who have made an effort to find out how well disinfection and sterilization are carried out in practice and to set some attainable standards [6]. Some of the situations in which doubt exists as to the best method are curiously common. For the ordinary glass thermometer, authoritative recommendations are that it simply be washed and then immersed for ten minutes in isopropyl or ethyl alcohol [7]; such hydrophilic viruses as coxsackievirus and echovirus are not however touched by isopropyl alcohol. Alternative recommendations include immersion in tincture of iodine (which is still remarkably with us) or glutaraldehyde followed by rinsing, and there are other possibilities. Electrocautery needles, as Sherertz et al. showed in 1986, are not self-sterilizing [8]; they need chemical treatment after use. The causative agent of keratoconjunctivitis will not succumb to alcohol, and the ophthalmological instruments which may carry them need to be treated in sodium hypochlorite. Glutaraldehyde is usable to disinfect endoscopes, but it needs to be used for a longer period when one is disinfecting a bronchoscope because it is slow to act on the tubercle bacillus. One also needs to be on the watch for cross-contamination when one employs the fingerstick devices used with glucose meters [9] and with multidose medication vials [10]. The norms which Drummond and Skidmore now propose to avoid these and similar pitfalls are largely derived from those established by Spaulding and his colleagues in 1977 [11], supplemented by a lot of knowledge derived from recent experience, and a modicum of common sense.

References

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Problems with a papoose board?

If anyone outside North America can define what in the medical world a papoose board is, Hippocrates would like to hear from them. On the western side of the Atlantic the contraption appears to be familiar: it is simply an upholstered board with straps attached, to which a patient can be attached firmly in less than a minute to restrain excessive movement. According to its manufacturer, from Seattle, tens of thousands of these devices have been purchased by physicians and clinics and there has been no instance of physical or psychological harm. The standard papoose board is very good for tying down frantic children, while an extra large model is claimed to be useful for the temporary restraint of the mentally retarded or of patients with nervous disorders or involuntary muscle spasm. Dr Peter Lewis of Toronto is less convinced that it is all safe, particularly in the young; tying a child to a papoose board, he points out, must be a terrifying experience, particularly if there is a mental or neurological handicap. Such a device may contribute to illness and death by preventing breathing or through the possibility that vomit will be aspirated.

The difficulty in the debate is that much the same objections can be and have been raised to pharmacological restraints – sometimes inelegantly referred to as dosing the patient flat. So what is one going to do, safely and humanely but effectively, in the sort of conditions where restraint is acutely needed? The readers of the *Journal* should be able to provide a sensible answer.

Lessons from cardiac valves

It is rather more than thirty years since Harken and his colleagues first fitted an artificial cardiac valve; the method has advanced by leaps and bounds since then, with numerous attempts to develop ever better valves, employing either tissue or

artificial materials, but problems still occur. They are in part to be anticipated; any valve prosthesis is smaller than the original valve which it replaces, so that a pressure gradient is established; unavoidably there is also some degree of leakage past the valve. Other problems are those of materials: tissue valves can degenerate, thrombosis and endocarditis can be triggered, and any valve can fail mechanically. Attempts to overcome those problems and to make such a prosthesis as haemodynamically efficient as possible has led to a plethora of designs and design changes, with the inevitable result that a design may be altered before it can be fully assessed in practice. Two types of mechanical valve have recently been withdrawn because there were simply too many mechanical failures: the convex-concave 60°/70° Björk-Shiley and the Duromedics valve have both gone. All the same, even popular valves still on the market do succumb to mechanical failure; by 1991 ten cases had been reported with the St. Jude medical prosthesis alone [1].

One needs to learn from such experiences, even where the valve concerned has been taken off the market, for the problems can arise again with another design. Let us welcome, then, a report commissioned by Holland's medical inspectorate to examine epidemiologically the events which led to the failure of the Björk-Shiley CC 60°/70° model [2]. Data were collected on 2588 implantations – some 96% of those carried out in the country – and it was found that over the nine-year period concerned 42 valve defects had occurred. They were relatively more common in young patients, more frequent with the 70° angle, and most likely to occur when the prosthesis was used to replace the mitral valve. In patients who survived the early post-operative risks, subsequent collapse of the valve was most likely after four years in the mitral position and six years in the aortic; thereafter the risk declined; over the whole period the annual rate of mechanical failure ranged between 0.5% and 1.9%.

One recommendation in the report is that patients still fitted with such a valve should be authorized to summon an ambulance directly to get them to heart surgery in case of need, without the need for medical consultation. That is particularly meaningful for patients with a mitral prosthesis, who may survive a valve collapse for some hours, whereas collapse of an aortic valve is usually fatal within ten minutes. Another proposal is that younger patients with such a valve in situ should be considered for valve replacement, the problem however being that there are no truly reliable figures as to the risk of this procedure.

As Van den Brink and De Jong remark in a thoughtful commentary on the Dutch report [3], it deserves to be widely known and used, but it must not be allowed to trigger misunderstanding: artificial heart valves are still life saving for the majority of patients, and they must not be discredited in panic.

References

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