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Commentary: Golden rules

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Few events in biology offer a more powerful demonstration of the wonders of natural selection than the spread of antibiotic resistance. Hospital staff struggling to contain the golden staph may, of course, take a more jaundiced view of its triumph.

Fortunately the microbe is not invincible. This week's review by Cooper and colleagues is a reminder that strict isolation measures can limit the spread of methicillin resistant *Staphylococcus aureus* (MRSA).¹ In a similar vein we have the recent report of a successful attempt at eradicating the organism by "ring fencing" elective orthopaedic beds.² The consequent drop in the incidence of postoperative infection allowed surgeons to do more joint replacements. Better research is urgently needed.

The literature on infection control began with Ignaz Semmelweis, a Hungarian physician, in the mid 19th century, and is now extensive. A review by Muto et al on behalf of the Society for Healthcare Epidemiology of America provides a useful insight into our cur-

rent understanding of the spread of MRSA, and so what needs to be done to combat it.³ The key to interrupting transmission is, of course, a firm understanding of what makes it possible. Do dirty rooms, dirty equipment, or dirty habits make the greatest contribution?

As many studies of MRSA have testified, hands (gloved or otherwise) are still the leading culprit. And transmission does not have to be direct. One investigation showed that almost half of the gloves worn by a group of nurses became contaminated with MRSA when they touched not the patients themselves, but various surfaces in the rooms where those patients were being nursed. Another study found the microbe on the keyboards of computers used only by clinicians.

There's evidence too of MRSA from gowns, white coats, all manner of portable equipment from stethoscopes to pagers, domestic items such as mops and furniture, and many types of environmental surface. In one hospital more than a quarter of 350

surfaces tested in the rooms of 38 patients colonised by MRSA were positive for the organism.

All this one might have suspected; more worrisome is the period for which the microbe can continue to pose a threat. One study of the outer surfaces of packages of sterile goods revealed the presence of MRSA that had survived for more than 38 weeks.

Given the part that antibiotics have played in fostering the emergence of resistant strains, it comes as something of a disappointment to learn that strict policies to limit their use are not enough to reverse the trend. Once MRSA has gained a foothold, there is, it seems, little correlation between its prevalence and the parsimonious use of antibiotics. Finland, the United Kingdom, and Italy all consume roughly the same amounts of these drugs, but they have big differences in the proportion of methicillin resistant isolates.

In short, while antibiotics do give the golden genie a selective advantage over its susceptible brethren once it has escaped its bottle, squeezing it back from whence it came depends principally on sustained efforts at preventing transmission. When it comes to regular hand washing, at least one survey has suggested that doctors are more blameworthy than nurses.

So, once more unto the sink, dear friends, once more . . .

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Alcohol drinking in middle age and subsequent risk of mild cognitive impairment and dementia in old age: a prospective population based study

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Abstract

Objective To evaluate the relation between midlife alcohol consumption and mild cognitive impairment and dementia in old age, and the possible modification of this relation by apolipoprotein E.

Design Prospective, population based study.

Setting Populations of Kuopio and Joensuu, eastern Finland.

Participants Of 1464 men and women aged 65-79 years randomly selected from population based samples studied in 1972 or 1977, 1018 (70%) were re-examined in 1998 (after an average follow up of 23 years).

Main outcome measures Mild cognitive impairment and dementia in old age.

Results Participants who drank no alcohol at midlife and those who drank alcohol frequently were both twice as likely to have mild cognitive impairment in old age as those participants who drank alcohol infrequently. The risk of dementia related to alcohol drinking was modified by the presence of the apolipoprotein e4 allele. The carriers of apolipoprotein e4 had an increased risk of dementia with increasing alcohol consumption: compared with non-carriers who never drank, the odds ratio for carriers who never drank was 0.6, for infrequent drinkers it was 2.3, and for frequent drinkers was 3.6 (the overall interaction term "drinking frequency*apolipoprotein e4" was significant ($P=0.04$), as were the interactions "infrequent drinking*apolipoprotein e4" ($P=0.02$) and "frequent drinking*apolipoprotein e4" ($P=0.03$)). Non-carriers

of apolipoprotein e4 had similar odds ratios for dementia irrespective of alcohol consumption.

Conclusion Alcohol drinking in middle age showed a U shaped relation with risk of mild cognitive impairment in old age. Risk of dementia increased with increasing alcohol consumption only in those individuals carrying the apolipoprotein e4 allele.

Introduction

Alcohol drinking has been proposed as a possible risk factor for cognitive impairment and dementia, though understanding the association has proved difficult. Some studies have found no association between alcohol drinking and cognitive impairment¹⁻³ or Alzheimer's disease,^{4,5} whereas others have found an association between heavy drinking and increased risk of dementia.^{6,7} Some have claimed there is a J or U shaped relation between alcohol drinking and cognitive impairment⁸⁻¹⁰ or dementia¹¹⁻¹⁴; that is, light to moderate alcohol drinking might have a protective effect compared with total abstinence and heavy drinking. The apolipoprotein e4 allele, which is the only genetic risk factor for dementia with an established risk for the general population, may modify the effects of alcohol on the risk of developing cognitive impairment^{15,16} or dementia.^{12,17} However, the observed pattern of the effect modification has been different across the studies.

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