For those of you allergic to latex, nitrile could be the glove material for you

An assessment of the incidence of punctures in latex and non-latex dental examination gloves in routine clinical practice by C. A. Murray, F. J. T. Burke and S. McHugh Br Dent J 2001; 190: 377-380

Objective

To investigate the puncture resistance of a recently introduced non-latex, nitrile dental glove in comparison with a latex glove worn during routine clinical dental procedures.

Setting

Dentists in general dental practice working within the UK during 1999.

Subjects and methods

2,020 gloves worn by five general dental practitioners were examined for punctures following standard clinical use by a water inflation method. Procedures undertaken during glove usage and length of time worn were recorded.

Results

Following clinical use, 1.9% of the latex gloves and 5.3% of the nitrile gloves had punctures, a statistically significant difference (P < 0.0001). The puncture resistance of the nitrile gloves was superior to the puncture resistance of previously tested worn non-latex (vinyl) gloves. There was no evidence of a statistically significant difference between operators for the percentage or incidence of punctured gloves (P = 0.787) after correcting for glove type. No statistically significant difference was noted between incidence of puncture in the control, unused gloves (n = 200 for each type) and the gloves examined following clinical use (P = 0.907 for nitrile, P = 0.613 for latex).

Conclusion

No increase in the number of punctures was noted following clinical use for either glove type. This could be considered to indicate good puncture resistance of the gloves tested in clinical use.

In Brief

- The incidence of latex sensitivity within healthcare workers is increasingly reported
- Many alternative materials to latex used in glove manufacturing have performed poorly in previous clinical studies
- Nitrile, a recently introduced synthetic co-polymer that does not invoke glove allergy, is a widely available substitute to latex gloves
- This paper investigated the puncture resistance of nitrile versus latex gloves during routine dental procedures
- · Nitrile gloves performed well in clinical use

Comment

Routine glove wearing is now considered normal practice within the dental surgery. Appropriate choice of operating gloves is particularly important in dentistry, since dental surgeons wear gloves for longer periods of time than other health care workers. The increasing problem of hypersensitivity to latex proteins has resulted in the need for gloves manufactured from alternative, non-latex materials. Vinyl gloves are not ideal for use in dental practice, either from the viewpoint of puncture resistance or closeness of fit. Another non-latex material that shows promise is nitrile, a synthetic co-polymer of acrylonitrile and butadiene combined with carboxylic acid. However, it is essential that operating gloves made from such novel materials are rigorously evaluat-

ed, both in respect of user acceptability and the degree of protection provided.

The study by Colin Murray and his colleagues is, therefore, timely and has examined the incidence of punctures during routine dental practice in a brand of nitrile glove compared with a good quality latex glove. Of 1,020 used nitrile gloves and 1,000 used latex gloves, 5.3% and 1.9% respectively were punctured. However, these figures were not significantly different from the prevalence of punctures in unused gloves of the same type. This suggests that there may be relatively little difference between the glove types in resistance to punctures during dental treatment, but that quality control procedures in the manufacture of nitrile gloves may require attention. No significant differences were noted in the development of punctures in relation to operator or to the clinical procedures being undertaken.

Clinical trials of new glove types, which will generate data of the type reported in this paper, are to be encouraged to allow clinicians to make an informed decision on the protective gloves they choose to use. The present study suggests that nitrile gloves currently represent a viable alternative to latex gloves for those with latex allergy, but further product development and evaluation is clearly needed in this area.

J. Bagg

Professor of Clinical Microbiology, University of Glasgow