Anesthesiology
1999; 91:1969

An Adverse Effect of Carboxymethylcellulose in Lidocaine Jelly

To the Editor:—Lidocaine jelly is widely used as a local anesthetic and a lubricant. Lidocaine jelly is composed of lidocaine, preservatives (methyl paraben and propyl paraben) and a suspending agent (carboxymethylcellulose).

Systemic adverse effects of lidocaine jelly usually are caused by an overdose or an allergic reaction to lidocaine or its preservatives (parabens).[1] An allergic reaction to carboxymethylcellulose in lidocaine jelly has not been known, although carboxymethylcellulose can cause anaphylaxis in cattle.[2] However, recently, it has been reported that carboxymethylcellulose in triamcinolone acetonide[3] and barium sulfate[4] induced anaphylaxis in humans. We report a case in which an allergic reaction to carboxymethylcellulose in lidocaine jelly may have been involved.

A 69-yr-old woman was seen in our pain clinic department with a history of three gastroscopic examinations using lidocaine jelly. These were followed each time by hyposthenia of the upper and lower limbs lasting several hours. The symptom suggests that overdose of lidocaine jelly may have been possible. Unfortunately, the concentration of lidocaine in the blood was not evaluated during the episodes. However, the recurrent episodes suggest that an allergic reaction to lidocaine jelly may have contributed, although the symptom is atypical of an allergic reaction. Therefore, carried out allergy tests with the components of lidocaine jelly.

Before the allergy tests, the patient provided written informed consent. Results of intradermal tests on the forearm with lidocaine, methyl paraben, propyl paraben, and carboxymethylcellulose were negative. Results of nasal provocation tests with lidocaine, methyl paraben, and propyl paraben were also negative, but tests with carboxymethylcellulose induced ipsilateral nasal congestion and dysthesia of the tongue and the ipsilateral temporal region within 30 min. The results of the two *in vivo* allergy tests with carboxymethylcellulose were inconsistent. The potential explanation is that the nasal mucosa may be more sensitive than the skin of the forearm because the nasal mucosa is rich in blood flow and is next to the pharynx, which was exposed to lidocaine jelly during the gastroscopic evaluations. To support the results of the nasal provocation test, we carried out an *in vitro* allergy test, the drug-induced lymphocyte stimulation test (DLST), which has been reported to be useful for the diagnosis of a drug allergy. Results of the drug-induced lymphocyte stimulation test with methyl paraben and propyl paraben were negative, but results of tests with carboxymethylcellulose were positive (fig. 1). The nasal provocation test and the drug-induced lymphocyte stimulation test showed that the patient has hypersensitivity to carboxymethylcellulose.

We have no direct evidence supporting that hypersensitivity to carboxymethylcellulose can induce hyposthenia of upper and lower limbs. However, the three recurrent episodes and the results of allergy tests suggest that an allergic reaction to carboxymethylcellulose in lidocaine jelly may have contributed to this case.

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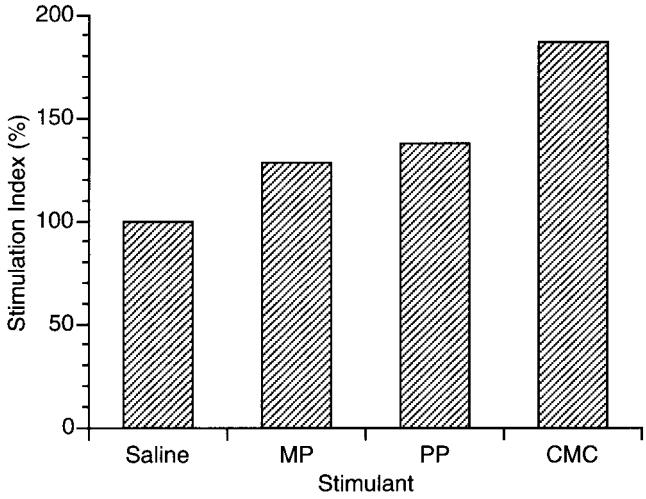

Fig. 1. The results of drug-induced lymphocyte stimulation tests with methyl paraben (MP), propyl paraben (PP) and carboxymethylcellulose (CMC). The baseline nonallergic lymphocyte stimulation test (= control) was carried out with saline, and this value was regarded as 100%. Results of the drug-induced lymphocyte stimulation test are positive if the stimulation index is more than 180%.

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(Accepted for publication July 15, 1999.)