Intrathecal Tricyclic Antidepressants Produce Spinal Anesthesia

曾劍英

Chen YW;Huang KL;Liu SY;Tzeng JI;Chu KS;Lin MT;Wang JJ

摘要

Abstract

Tri-cyclic antidepressants (TCAs) have been widely used in treating major depressive disorders. Recent studies further demonstrated that TCAs have potent sodium channel blocking effect, and amitriptyline, one of the TCAs, has a potent spinal anesthetic effect. The aim of the study was to evaluate the spinal anesthetic effect of various TCAs and to see whether these TCAs could likewise act as local anesthetics after a single intrathecal injection. Bupivacaine, a potent and long-acting traditional local anesthetic, acted as control. The spinal anesthetic effect of nine TCAs (amitriptyline, doxepin, imipramine, trimipramine, clomipramine, protriptyline, desipramine, nortriptyline, and amoxapine) and three traditional local anesthetics (bupivacaine, lidocaine, and mepivacaine) was evaluated in rats and so were dose-response studies of amitriptyline, bupivacaine, and lidocaine. Under a given concentration of 5mM, bupivacaine had the most potent spinal blockade of motor, propioception, and nociception ($P<0.001$) and the longest duration of action of nociception ($P<0.01$) among the three traditional local anesthetics. Under this concentration, amitriptyline had a similar potency but longer duration of spinal blockade of motor, propioception, and nociception ($P<0.001$) than did bupivacaine, whereas several other TCAs had similar or less potencies of spinal blockade than did bupivacaine. In dose-response studies, amitriptyline had a more potent ($P<0.005$) and longer duration ($P<0.001$) of spinal blockade than did bupivacaine. We concluded that intrathecal amitriptyline had a more potent and longer duration of spinal anesthetic effect than did bupivacaine, whereas several other TCAs had similar or less potencies than did bupivacaine.