

PE-68. DOES AGE INFLUENCE THE SUCCESS RATE OF PERIPHERAL NERVE BLOCKS?Gebhard, R.E.^{1,2}; Matuszczak, M.E.¹; Sciard, D.A.¹; Tung, N.¹; Doehn, M.²

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Introduction: It has been demonstrated that equipotent doses of bupivacaine produce significantly greater nerve blocks in older than in younger rats, as measured by evoked electrical activity monitoring (1). This observation may have implications for the use of local anesthetics in an aging population. The aim of this study was to evaluate whether age influences the success rate of supraclavicular brachial plexus blocks.

Methods: Over a ten year period, 1596 consecutive non-diabetic patients received supraclavicular brachial plexus blocks for surgery of their upper extremity. A standardized paresthesia technique was used and all patients received mepivacaine 3mg/kg. Patients were retrospectively divided in three groups. Group Y (Young): 172 patients not older than 30 years, Group M (Middle): 1147 patients with an age ranging from 31 to 69 years and Group O (Old): 277 patients with an age of 70 years or older. Block success rate was routinely evaluated and documented on the anesthesia record on the day of surgery. Criteria for successful blocks included: no need for any additional anesthetic technique or supplement, no need for intraoperative narcotics or for local infiltration by the surgeon. Data were analyzed using a one way analysis of variance and a Chi-Square test when indicated and are expressed as mean \pm SD or as percentages.

Results: Overall block success rate was 88%. There was no significant difference in success rate among the three groups. Patients in Group M were significantly more often of male gender than in both the other groups. No significant differences were observed regarding weight in between the three groups.

* = $p \leq 0.05$ vs Group Y= $p \leq 0.05$ vs Group O

Conclusion: As suggested in animal experiments "diabetic" nerve fibers appear to be more sensitive to local anesthetics, which may require to reduce the local anesthetic dose to avoid nerve injury (2). Consequently, higher success rates of peripheral nerve blocks in diabetic humans have been reported (3). Our data indicate no difference in success rate of supraclavicular nerve blocks depending on the patients age. Therefore a higher sensitivity of "old" nerve fibers to local anesthetics seems to be unlikely. However, other factors such as decreased metabolism rate may result in increased block duration. Further investigation is needed to evaluate the effects of age on the practice of regional anesthesia.

1. Yee TC, Kalishman MW. Effects of aging on nerve conduction block induced by bupivacaine and procaine in rats. *J Peripher Nerv Syst* 1997; 2: 175-9

2. Kalishman MW, Calcutt NA. Local anesthetic conduction block and nerve fiber injury in streptozotocin-diabetic rats. *Anesthesiology* 1992; 77: 941-7

3. Gebhard RE, Matuszczak M, Sciard DA, Wolf M, Doehn M. Does diabetes mellitus influence success rate of regional blocks? *Anesthesiology* 2001; 95: A971

| | Group Y (n = 172) | Group M (n = 1147) | Group O (n = 277) |
|---------------------|-------------------|--------------------|-------------------|
| Age (Yrs) | 24 \pm 5 | 52 \pm 10 | 77 \pm 6 |
| Weight (Kg) | 73 \pm 17 | 74 \pm 23 | 67 \pm 12 |
| Gender male (%) | 45 | 61 *† | 46 |
| Complete Blocks (%) | 88 | 89 | 87 |