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QT DISPERSION IN HEALTHY YOUNG AND ELDERLY VOLUNTEERS

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BACKGROUND: QT dispersion (QTd) is determined from the measurement of the minimum and maximum QTc for each lead of a 12 lead ECG. Increased QTd has been associated with increased cardiac mortality in patients with prolonged QT syndromes, chronic heart failure (CHF) (Barr et al. Lancet 1994;343:327-329.) and peripheral vascular disease (PVD) (Darbar et al. Br Med J 1996;312:874-879). The effect of age on QTd in healthy subjects however has not been examined. Therefore the aim of the study was to measure QTd in young healthy subjects and compare them to a healthy older cohort.

METHODS: Normal ECGs from 20 young (<40) and 20 elderly (>65) subjects were examined according to published methods for QTd (Barr et al. Lancet 1994;343:327-329.). All subjects were healthy as determined by history, examination, blood testing and ECG review. In the absence of published normal values and based on the young data, this study was designed with the power to detect a difference of 20% at the 5% level of significance with 18 ECGs. Statistical analysis was by Mann-Whitney U test. Results are given in milliseconds^{1/2} with mean \pm SD followed by 95% confidence levels.

RESULTS: No significant difference was detected between the young (60.2 ± 17.1 ms^{1/2}; 52 - 68) and elderly (68.2 ± 29.5 ms^{1/2}; 54 - 83; $p = 0.19$) volunteers.

CONCLUSIONS: This is the first study to examine the effect of age as opposed to disease on QTd. There was no significant difference noted. However, a true difference of less than 20% can not be excluded on the basis of these data. All our subjects were healthy but occult coronary artery disease was not excluded. As QTd is increased in patients with CHF and PVD, if QTd is to be useful as a sensitive and specific non-invasive tool for assessing the risk of cardiac death, then the finding of a lack of an age effect on QTd is important in further validating this novel measurement.

NASAL ABSORPTION OF HYDROXOCOBALAMIN IN HEALTHY OLDER ADULTS

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Introduction: Cobalamin (Cbl) deficiency is very common among older people. Most physicians use intramuscular Cbl injections for treatment of Cbl deficiency. However, injections have many drawbacks, especially in older people. A more convenient and cost-effective alternative would be advantageous to medical practice.

Purpose: To determine the absorption of nasally administered hydroxocobalamin (OH-Cbl) in an isotonic aqueous medium (patent nr WO 95/17164) in healthy older adults.

Design: In a cross-over study-design OH-Cbl, in a dose of 750 μ g and 1500 μ g, was administered as nasal spray to 10 healthy adults, age 71.6 ± 4.6 (mean \pm SD). Blood samples were collected before administration of the drug and after 10, 20, 30, 40, 60, 120, 180 and 240 minutes. Plasma Cbl concentration was determined by competitive radioisotope binding technique using purified hog intrinsic factor as binder.

Results: After nasal administration of 750 μ g OH-Cbl the maximal plasma Cbl concentration (C_{max}) and the time to reach the maximal plasma Cbl concentration (T_{max}) were 1943 ± 294 pmol/l (mean \pm SEM) and 32 ± 2 minutes, respectively. After nasal administration of 1500 μ g OH-Cbl the C_{max} and T_{max} were 3730 ± 807 pmol/l and 28 ± 5 minutes, respectively. After administration of 750 μ g and 1500 μ g OH-Cbl the increase from baseline to maximum plasma Cbl concentration was 1663 ± 292 pmol/l and 3494 ± 815 pmol/l, respectively. The nasal spray was well tolerated and no side effects were noted.

Conclusions: Nasal absorption of hydroxocobalamin is fast, high and safe. The amount absorbed increases with increasing dose of hydroxocobalamin.

REDUCED PLASMA VITAMIN B12 LEVELS IN OLDER PATIENTS: A STATE OF B12 DEFICIENCY

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Background: Reduced vitamin B12 levels are very common in older hospital patients. Most of them have normal blood counts. These low B12 levels are often considered to have no clinical significance or are simply ignored. **Objective:** To determine whether older patients with reduced B12 levels are B12 deficient. B12 deficiency was considered present when a cause or a sign of B12 deficiency or a response to B12 administration could be identified. **Methods:** 28 older hospital patients with reduced plasma B12 levels were studied: 23% had B12 levels < 75 pmol/L, 27% had B12 levels between 75-100 pmol/L and 50% had B12 levels between 100-160 pmol/L. Two patients with anaemia are not included here since they are likely to be considered B12 deficient. Free and protein-bound B12 absorption were assessed. Haematologic, neurologic and metabolic (plasma methylmalonic acid and total homocysteine levels) measurements were obtained. 17 patients could be evaluated after parenteral B12 administration. **Findings:** Causes of B12 deficiency, i.e. B12 malabsorption, were identified in 81%. Signs of B12 deficiency were identified in 96%: macrocytosis in 15%, hypersegmented neutrophils in 54%, neurologic abnormalities in 31%, and elevated metabolite levels in 88%. All patients available for follow-up had a haematologic or metabolic response to B12 administration. Therefore, all 3 criteria of B12 deficiency were fulfilled by 65%, 2 criteria were fulfilled by 27% and 1 criterion by only 8%. **Interpretation:** Older patients with reduced B12 levels are B12 deficient and should receive B12 therapy.