319

EVALUATION OF SERUM ELECTROLYTE AND MYOCARDIAL ENZYME LEVELS DURING DOBUTAMINE STRESS TEST (DST)

Adnan BASIBI, H.Ismail ERBIL, Cumhur BILGI; Biochemistry and Clinical Biochemistry Dep.,GATA Medical Faculty,Etlik-Ankara/TURKEY

Aim of this study was to investigate the possible risks of pharmacological stress tests, of these are widely used for evaluation of myocardial ischemia and performance.For that purpose serum CKBB, CKMB/CKMM ratio, sodium potassium, total and ionized calcium, magnesium and phosphorus levels of 39 ischemic heart patients (10 of them admitted as control group) were determined before, during and after dobutamine infusion, which is one of the mostly utilized pharmacological stress test.

Serum sodium and ionized calcium levels were found to decrease in both DST and control groups at the 8th minute of exercise.Potassium, magnesium and total calcium levels elevated in dobutamin group in contrast to a fall in control group.Nourtine phosphorus levels elevated in DST group while decreasing in control group.However all these alterations were within the reference ranges and were all statistically insignificant.

On the other hand, serum levels of CKBB increased to the values of 5.68 ± 1.00 (±SEM) and 12.01 ± 1.01 (±SEM) from the prior to test levels of 6.59 ± 0.59 (±SEM) and 8.8 ± 0.80 (±SEM) by the 16th hours in DST and control groups, respectively.

CKBB/CKMM ratios were determined as 21.55 ± 1.56 (±SEM) percent and 23.28 ± 1.70 (±SEM) percent in DST group before and after test, respectively (p)0.05); same values estimated to be 13.5 ± 1.93 (±SEM) percent before and 44.30 ± 7.04 percent at 16th hours of tests in control group (p<0.001).

As we found that serum myocardial enzyme and serum electrolyte levels did not alter significantly during DSTs, dobutamine induced pharmacological stress tests were concluded to be safe enough for applying to patients even in high infusion rates.(40 μg/kg/min)

320

MYOCARDIAL TISSUE CONCENTRATIONS OF Cu,Zn,Mg AFTER AMI

E.Y.Sözmen, B.Ersöz, G.Menteş, H.Hancı, S.Erlaçin
Medical Faculty of Ege Univ,Dept.of Biochem,Izmir,TURKEY

There is increasing interest for the role metal ions exert in cardiovascular disease.Studies carried indicating the decline in these elements after AMI(Acute myocardial infarction)prove that they play a role in the integrity of the myocardium.While there are many investigations carried in sera related to elemental variations the elemental status of the necrotic myocardium has not been fully elucidated.Thus our aim complementing our previous research carried in the sera of AMI patients has been to determine the elemental status of the necrotic myocardium.Thus,the elemental levels of the necrotic tissue were compared both to the intact myocardium of the same cases,as well as to the myocardial autopsy samples of other cases,where AMI was excluded as the cause of death.

For the extraction of Cu,Zn and Mg a technique utilizing HNO/HClO(1/1) was applied,the incubation period being 72 h. Cu and Zn were determined by Atomic Absorption Spectrometry and Mg by a spectrophotometric method based on the formation of xylidyl blue-Mg complex.

Cu,Zn and Mg levels were 0.89±0.86, 7.94±0.58, 64.6±28 in the necrotic tissue 1.25±0.19,9.95±1.18,108.43±31.2 in the intact myocardium of the same cases 2.28±0.58, 9.82±1.46, 117.77±13.37 in tissue samples of other cases where AMI had been excluded , respectively.(Results were given by μg/gr)

Briefly evaluating the results obtained,we conclude that there is a significant decline in Cu and Mg in the necrotic myocardium.Although a decline related to zinc is also noted,this is not significant.Our findings indicate that Cu,Zn and Mg are essential for the structural and functional maintenance of the myocardium.

321

PLASMA MAGNESIUM LEVELS EVOLUTION DURING POST ACUTE MYOCARDIAL INFARCTION.

N. Gimenez, R. Deulofeu, J.L. Bedini, X. Bosch*, F. Pava*, E. Mas, and A.M. Balleste.
Servei de Bioquimica Clinica, *Servei de Cardiologia, Hospital Clinic i Provincial de Barcelona, Barcelona. Spain.

Magnesium deficit is a frequently forgiven alteration in myocardic function. Hypomagnesemiahas been associated with arrithmia, increased coronary vasospasm, and myocardic ischaemic vulnerability. Similarly, an inverse relation between magnesium content in drinking water and cardiovascular disease has been described. Recent studies demonstrated the usefulness of Magnesium therapy for Acute Myocardial Infartion (AMI) treatment. Other studies found a pre-AMI Magnesium levels lower than normal, that continues during the first days post AMI.

The aim of this study was to assess plasma Magnesium status during AMI, prior to use Magnesium supplementation in this patients.

We studied 23 AMI diagnosed patients received at the Emergency room of our Hospital, and blood samples were drawn at the income, and 1,3,6,9,12,18,24,36,48 hours after and on days 3,4,5 and 6 post IAM. After clothing blood was immediately centrifuged and serum separated and send frozen to laboratory for analisys. Magnesium levels were measured by Atomic Absorption Spectrophotometry (Perkin-Elmer 1100-B). No patients received Mg therapy during the study period.

Hipomagnesemia (considered as serum Mg < 0.7 mmol/L) was detected in 5 patients (22%). Mean plasma Magnesium concentration at entry of this 23 patients were 0.84 mmol/L, table shows the evolution of Magnesium levels during the days studied.

Time h.	0	1	3	6	12	18	24	48	96
Mg mmol/L	0.84	0.77	0.80	0.81	0.84	0.82	0.84	0.88	0.98
s.d.	0.15	0.21	0.13	0.14	0.14	0.15	0.15	0.12	0.12

The high incidence of hypomagnesemia suggest that it could be of interest to assess magnesium levels in this patients and Magnesium supplements could be an interesting strategy.

322

CHANGES IN MUSCULAR PROTEINS DURING SIMULATED MICROGRAVITY

E.Artner-Dworzak, P.Secnik, A.Koller*, A.Huigg**, M.Harosi**, V.Parrak,F.Gerstenbrand** and B.Puschendorf
Depts.of Medical Chemistry & Biochemistry, Neurology** and Sportsmedicine*, University of Innsbruck, Austria

We report on changes in muscle protein pattern in plasma of 5 volunteers staying 5 days in dry water immersion (foil covered water bath), to simulate microgravity. Additionally they were exposed to a standardized isometric load (40 contractions with max. force 5 sec with 10 sec rest in between) of quadriceps femoris muscle 2 hours after and 14 days before immobilisation. Plasma levels of slow twitch skeletal (cardiac β type) myosin heavy chain (MHC), myoglobin, CK and CK-MB-mass were measured before and daily during immobilisation and 6 hours after isometric exercises and a daily follow up was conducted for 5 days. Following muscle load 2 hours after immobilisation muscle protein levels increased dramatically (MHC 25 fold, peak 72 hours after load, Myoglobin 4 fold, CK 8 fold, CK-MB 8 fold, peak with 16 hours delay). Even twice as high isometric loads 14 days before immobilisation showed a significant lower response to loading (MHC 5 fold, Myoglobin 2 fold, CK 2 fold, CK-MB 2 fold). Measurements of c-GMP and cardiacspecific troponin-T demonstrated no alteration of cardiac muscle cells. Since MHC is increasing, we conclude that totally conducted immobilisation is leading to hidden and diffuse lesions of slow twitch fibres mostly occuring in antigravitational muscles. This process is detectable and can be discriminated only following muscle load. We suggest these findings as a consequence of a functional adaptional process rather indicating regeneration than damage of slow skeletal muscle fibres.

Annales de Biologie Clinique

Vol 51 / N° 3–4–5-1993 ABCLAI (51) (3–4–5) 157-589 1993 ISSN 003-3898

Eurolab 93

10th IFCC European Congress of Clinical Chemistry

12th SFBC National Meeting

Nice, April 25–29 , 1993

Abstract book/*Résumés des conférences et posters*

SFBC
Société française de biologie clinique

IFCC
INTERNATIONAL FEDERATION OF CLINICAL CHEMISTRY

Abstract book

Autor: Société Française de Biologie Clinique

Verlag: Paris Elsevier 1993

Serien: Annales de biologie clinique, 51,3/5

Ausgabe/Medienart: Gedrucktes Buch : Tagungsband

Details

Medienart:	Tagungsband
Dokumenttyp	Buch
Alle Autoren:	Société Française de Biologie Clinique
OCLC-Nummer:	1070420758
Beschreibung:	S. 159 - 571
Serientitel:	Annales de biologie clinique, 51,3/5
Verfasserangabe:	Eurolab 93 / 10th IFCC European Congress of Clinical Chemistry ; 12th SFBC national meeting, Nice, April 25 - 29, 1993.