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BIOCHEMICAL AND HAEMATOLOGICAL ASPECTS OF ETHANOL METABOLISM IN HUMANS

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ABSTRACT

Macrocytosis or raised mean cell volume (MCV) (which as measured by the Coulter S counter) is one of the results of alcohol abuse. There is a need to identify (chronic) alcoholics by laboratory tests. The obvious measurement of blood alcohol is not suitable as ethanol is so rapidly cleared from the body. It is usually undetectable 2 - 3 hours after drinking. To this the following battery of tests: MCV, fast haemoglobin, gamma glutamyl transferase and thiamine, have been examined.

These tests which were performed, on a population consisting of 115 random hospital patients, 14 patients attending diabetic clinic and 13 'normal' volunteers. For ethical reasons it was not possible to obtain samples from known alcoholics. Instead those samples which contained red cells above 92 fl of MCV were suspected of including alcoholics and correlated with other parameter which may be assumed to be elevated in alcoholics.

The results showed that there were 23 abnormal findings likely to be associated with heavy drinkings in 70 bloods selected for high MCV.

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ABBREVIATIONSGeneral

Gly Hb	glycosylated haemoglobin
Hb	haemoglobin
Hb A	adult haemoglobin
IEF	isoelectric focussing
MCV	mean cell volume (mean corpuscular volume)
PCV	packed cell volume
RBC	red blood cell
THF	tetrahydrofolate

Chemicals, enzymes

ALAT	alanine aminotransferase
ASAT	aspartate aminotransferase
DMSO	dimethyl sulphoxide
EDTA	ethylenediaminetetraacetate (potassium salt)
GDH	glycerolphosphate dehydrogenase
GGPNA	gamma glutamyl-p-nitroanilide
GGTP	gamma glutamyl transpeptidase (gamma glutamyl transferase)
HMF	hydroxymethylfurfural
NADH	reduced nicotinamide adenine dinucleotide
TBA	2-thio barbituric acid
TCA	trichloroacetic acid
TIM	triose phosphate isomerase
TK	transketolase
TPP	thiamine pyrophosphate
Tris	tris (hydroxymethyl) aminomethane

CONTENTS

	<u>Page</u>
Abstract	ii
Acknowledgements	iii
Abbreviations	iv
List of contents	v
List of figures	viii

CHAPTER 1

<u>INTRODUCTION</u>	1
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CHAPTER 2

<u>HAEMOGLOBIN ADDUCTS</u>	4
2-1. Introduction	4
2-2. Glycosylation	4
2-3. Carbamylation	5
2-4. Acetaldehyde adduct	5
2-5. Aspirin adduct	5
2-6. The determination of haemoglobin adducts	6
2-7. Methods	6
2-7-1. Column chromatography	6
2-7-1-a. Preparation of resin	6
2-7-1-b. Buffers	7
2-7-1-c. Preparation of haemolysate	7
2-7-1-d. Column chromatography of haemoglobin	7
2-7-1-e. Regeneration of resin	8
2-7-1-f. Measurement of haemoglobin	8
2-7-1-g. Elution of haemoglobin	8
2-7-1-h. Reproducibility	8
2-7-2. Isoelectric focussing	12
2-7-2-a. Haemolysates	12
2-7-2-b. Preparation of gels	12
2-7-2-c. Electrophoresis	13
2-7-2-d. Measurement of pH gradient	13
2-7-3. Hydroxymethylfurfural assay	19
2-7-3-a. Production of hydroxymethylfurfural from haemoglobin	19

	<u>Page</u>
2-7-3-b. Effect of antioxidants on HMFF formation from haemoglobin	19
2-7-3-c. Precision of the method	22
2-8. Acetaldehyde adduct	23
2-8-1. Introduction	23
2-9. Conclusions	23

CHAPTER 3

	<u>Page</u>
<u>BIOCHEMICAL AND HAEMATOLOGICAL MARKERS OF ALCOHOL ABUSE</u>	26
3-1. Introduction	26
3-2. MCV	27
3-3. Determination of gamma glutamyl transpeptidase	31
3-3-1. Principle	31
3-3-2. Preparation of beef liver gamma glutamyl transpeptidase (GGTP)	31
3-3-3. Assay procedure	31
3-3-4. The calculation of the enzyme activity	32
3-3-5. Precision of the method	32
3-3-6. Normal values	32
3-4. Thiamine deficiency	34
3-4-1. Introduction	34
3-4-2. Principle	34
3-4-3. Method	35
3-4-4. Calculation of the enzyme activity	35
3-4-5. Normal ranges	36
3-4-6. Results in the normal plasma	36
3-4-7. Conclusions	36

CHAPTER 4

	<u>Page</u>
<u>RESULTS IN NORMAL VOLUNTEERS AND HOSPITAL PATIENTS</u>	37
4-1. Source of blood samples	37
4-1-1. Normal volunteers	37
4-1-2. Hospital patients	37
4-2. Fast haemoglobin	39
4-3. Hydroxymethylfurfural	39
4-4. The relationship between fast haemoglobin and HMFF results	39
4-5. Gamma glutamyl transferase	46
4-6. Thiamine deficiency	48
4-7. Combination of data	51

	<u>CHAPTER 5</u>	<u>Page</u>
	<u>DISCUSSION</u>	52
	<u>APPENDIX I</u>	
Table 1		56
Table 2		57
Table 3		60
Table 4		62
	<u>APPENDIX II</u>	
Materials		63
	<u>REFERENCES</u>	64

LIST OF FIGURES

<u>Figure</u>	<u>Title</u>	<u>Page</u>
2-1-1.	Absorbance of cyanmethaemoglobin at different wavelengths from 225-600 nm	9
2-1-2.	Absorbance of cyanmethaemoglobin at 415 nm	10
2-1-3.	The elution profile of fast haemoglobin from a Biorex 70 column with pH 6.7 buffer	11
2-2-1.	The pH gradient on polyacrylamide gel purchased from LKB and used in isoelectric focussing	15
2-2-2.	The pH gradient on polyacrylamide gel prepared in the laboratory and used in isoelectric focussing	16
2-2-3.	Isoelectric focussing of human haemoglobins on polyacrylamide gel purchased from LKB	17
2-2-4.	Isoelectric focussing on human haemoglobins on polyacrylamide gel prepared in the laboratory	18
2-3-1.	Rate of production of HMFF from the normal haemolysate pool and fructose standards	20
2-3-2.	The absorption of HMFF and HMFF + Hb at 443 nm	21
2-5-1.	Isoelectric focussing of haemoglobins to which acetaldehyde had been added (LKB pH 5.5-8.5 gel)	25
3-1.	Frequency histogram for MCV	30
3-2.	The change in absorbance of p-nitroaniline due to GGTP activity	33
4-1.	Histograms for MCV for the three groups of subjects	38
4-2.	Histograms for fast Hb for the three groups of subjects	40
4-3.	Histograms for HMFF for the three groups of subjects	41
4-4.	Correlation curve between HMFF and Fast Hb for the diabetics.	42
4-5.	Correlation curve between HMFF and Fast Hb for normal MCV group	43
4-6.	Correlation curve between HMFF and Fast Hb for high MCV group	44
4-7.	Histograms of GGTP	47
4-8.	Histograms of transketolase activity	49
4-9.	Correlation between transketolase activity and the effect of adding excess thiamine pyrophosphate for the high MCV group bloods	50