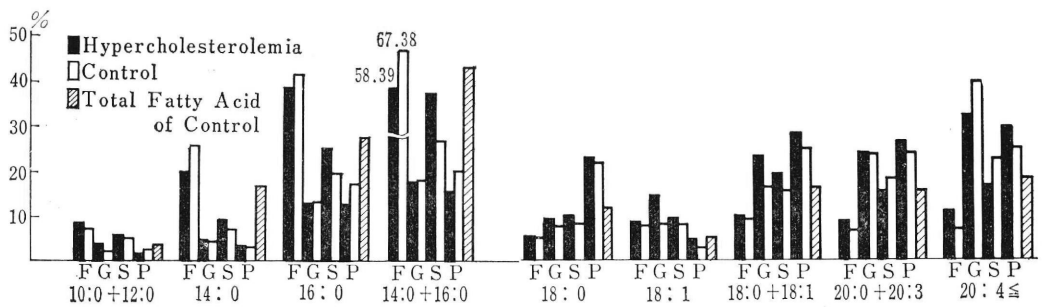
distinct (as picture) nonesterified fatty acid had 67.38% of myristic and palmitic acid in control and 58.38% in arteriosclerotics. So we authors think that these fatty acids synthesized by malonyl CoA pathway are most transportable type of fatty acid and a decrease of percentage of radioactivity of this type's fatty acid in arteriosclerotics makes a disturbance of fatty acid metabolism of transportation. Glyceride fatty acid in arteriosclerotics contained 13.55% of oleic acid that was conspicuously higher than control.

This phenomenon is thought to be a key to the hyperlipidemia or the atherogenic state, if this esterification may be difficult to be hydrolysis. Phospholipid incorporated relatively high percentage of stearic acid and unexpectedly low percentage of oleic acid into esters. Then, referring to published data, we have consider that stearic acid combining phospholipid have a high speed of metabolism in our living body. 6. In order to clarify the turn over rate of each fatty acid in each fractions, these results are to be more broadly analyzed, conferring with already published works, if more space to discuss might be endowed. 7. Effect of linoleate preparation, containing 500 mg ethyl linoleate, 0.5 mg vitamin E acetate and 0.25 mg vitamin B_6, on incorporation of ^{14}C acetate into fatty acids and cholesterol was as follows; 1) Incorporation into cholesterol fraction decreased clearly. 2) Fatty acid synthesis diminished in tendency. 3) Percentage of radioactivity in stearic and oleic acid decreased, particularly in oleic acid strikingly, in each major in stearic and oleic acid decreased, partiactivity into fatty acids of phospholipid was rectified to about 20%.

Percentage of Radioactivity in Various Fatty Acid of Major Lipid Classes



Clinical Studies on the Secretion and Metabolism of Androgens using ^{14}C-Dehydroepiandrosterone, ^{3}H-Dehydroepiandrosterone Sulfate and ^{3}H-Testosterone

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Plasma dehydroepiandrosterone sulfate (DHA sulfate) was measured in 6 normal subjects (3 males and 3 females) a female pseudohermaphroditism and a patient with hirsutism using the method of Conrad et al., (J. Clin. Invest. Vol. 40, p. 947, 1961) and Baulieu's paper chromatography system (isopropyl ether: benzene: hexane: tert-butanol: ammonium hydroxide: water 20:5:3:12:4:36) for the last purification of the

DHA sulfate.

H-labelled DHA sulfate with known radioactivities was added for recovery collection to each 15 ml of plasma taken from the subjects examined. Forty-five ml of absolute ethanol was added to the plasma to precipitate plasma proteins. After filtering the mixture, the filtrate was evaporated to near dryness using a rotatory flash evaporator. Secondary butanol was added to the filtrate for a partial separation of steroid conjugates from inorganic salts. The secondary butanol extract was applied to a florisil column for separating free 17-ketosteroids, 17-ketosteroid sulfate and 17-ketosteroid glucuronide. The 17-ketosteroid sulfate fraction was developed on Baulieu's paper chromatography mentioned above. The eluate from the paper part corresponding to the Rf of a pure DHA sulfate was divided into two parts, one for measuring weight of DHA sulfate by Zimmermann reaction, the other for measuring radioactivities by a liquid scintillation spectrometer. Then plasma concentration of DHA sulfate were calculated from recoveries and weights of DHA sulfate.

The obtained values were as follows.

Three normal males: 145μp/100ml, 224μg/100ml, and 260μg/100ml

Three normal females: 211μg/100ml, 258 μg/100ml, and 294μg/100ml

A female pseudohermaphroditism: 224μg/100ml

A female with ihrsutism: 195μg/100ml

Secretion-, production-, interconversion-, and irreversible metabolic rates of dehydroepiandrosterone (DHA) and DHA sulfate in normal controls and patients with various diseases were measured by the method of Vande Wiele et al. (Recent Progr. Hormone Res. 19:275, 1963) using ^{14}C-DHA and ^{3}H-DHA sulfate. No statistically significant difference was found between the mean values in 4 normal males and those in 4 normal females, but significant increases in the rates (except interconversion rates) were found in 3 female patients with adrenogenital syndrome (congenital adrenal hyperplasia) compared with those in 4 normal females. In a case of 4-year-old boy with precocious puberty due to adrenal cancer, secretion rates of DHA and DHA sulfate were remarkedly increased. In two of three patients with Cushing's syndrome due to adrenal adenoma, no increase was observed in secretion rates of DHA and DHA sulfate.

Urinary production rate (UPR) of testosterone (T) was measured by isotope dilution method. From the specific activity of ^{14}C-T isolated from T glucuronide in 48 hr urine after i.v. injection of ^{14}C-T, UPR of T was calculated. Values of UPR of T were 5.18 and 7.91 mg/day in 2 normal males, 3.44 mg/day in a case of Addison's disease and 3.16 mg/day in a patient with adrenal hypofunction after ^{60}Co irradiation for suspected cerebral tumor.

Radioactive urinary androsterone (A)/etiocholanolone (E) ratio, metabolised from ^{14}C-T wa smeasured. Radioactive A/E ratios were 0.81 in a normal male, 0.28 in a case of Cushing's syndrome (adrenal adenoma), 3.25 and 3.30 in 2 cases of hyperthyroidism, 1.10 in a patient with liver cirrhosis and 0.95 in a case of female pseudohermaphroditism.

Measurement of Plasma Transcortin Concentration in Man utilizing Gel Filtration and 4-C^{14}-Cortisol

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Plasma concentrations of transcortin were measured in man by the method of Doe et al. (J. Clin. Endocr. 24:1029, 1964) utilizing gel filtration and 4-C^{14}-cortisol. Values in 8 normal males were 24.2—37.7 (32.25±4.39 mean S.D.) mg/l. Values in 3 normal females were 25.4—33.3 (29.03±5.64) mg/l and showed no significant increase in plasma trans-