

Acta endocrinologica

Supplementum 159

ADVANCE ABSTRACTS OF SHORT PAPERS

18. Symposium Deutsche Gesellschaft für Endokrinologie
Unter Mitwirkung der Deutschen Gesellschaft für Klinische
Chemie

Hannover

March 1-4, 1972

PERIODICA · COPENHAGEN 1972

CONTENTS

TRH, TSH, Schilddrüse

1. C. R. Pickardt, F. Erhardt, W. Geiger, R. Fablbusch, H. G. Heinze and P. C. Scriba: TRF-stimulation-test in hypothalamic and pituitary diseases, and in autonomous adenoma of the thyroid.
2. G. Rothenbuchner, J. Birk, U. Loos, S. Raptis and E. F. Pfeiffer: The dynamics of TSH-secretion after oral administration of synthetic thyrotropin-releasing factor (TRF) in metabolically normal subjects.
3. G. Rothenbuchner, U. Loos, G. Knapp, I. Birk, W. R. Kießling and E. F. Pfeiffer: The alterations of total-thyroxine and total-triiodothyronine after oral application of synthetic thyrotropin-releasing factor (TRF) in metabolically normal subjects.
4. K. Retiene, H. Holz, A. Müller, R. Guthoff, H.-J. Ewers, K. M. Bartelt, P. Althoff and V. Grabs: Further experimental und clinical findings during long-term administration of synthetic TRH.
5. F. Adlkofer, H. Schleusener and A. von zur Mühlen: TSH activity in extracts from hyperthyroid plasma before and after administration of thyrotropin-releasing factor (TRH).
6. R.-D. Hesch, M. Hüfner and A. v. z. Mühlen: Radioimmunoassay of triiodothyronine in thyroid diseases.
7. J. Habermann, J. Henner, K. Horn, I. zur Horst and P. C. Scriba: Automatization of serum thyroxine determination and of T₃-uptake test.
8. K. Horn, H. Borowzak, J. Habermann, M. Rettig, T. Rubl and P. C. Scriba: Total serum T₃ and T₄ in nontoxic goiter and autonomous adenoma.
9. K. Hackenberg, R. Schneider and D. Reinwein: Thyroidal suppressibility and thyroglobulin antibodies during treatment of thyrotoxicosis with anti-thyroid drugs.
10. F. W. Lohmann, H. Schleusener and F. Adlkofer: The sympatho-adrenal system in hyperthyroidism.
11. J. Nolte, D. Brdiczka, P. C. Scriba und H. W. Staudte: Schilddrüsenhormonwirkung im Riboflavinmangel.
12. K. Schimmelpfennig, A. Kaul and E. Köbler: Problems connected with investigations of athyroid experimental animals.

Steroidstoffwechsel und -wirkungen

13. W. Mestwerdt, H. Brandau und H. H. Kley: Struktur und Funktion steroidaktiver Zellen im Postmenopauseovar.
14. M. Breckwoldt, W. Wortmann, J. C. Touchstone and B. P. Lisboa: In-vivo perfusion of the kidney with ³H-estradiol-17 β in the rhesus monkey.

15. *P. Benes and G. W. Oertel*: Penetration of intact mitochondria by dehydroepiandrosterone, its conjugates or derivatives.
16. *H. Brandau and G. Mutzke*: Aktivitätsmuster von Hydroxysteroid-Dehydrogenasen im Corpus luteum des Rindes.
17. *Jeanne Sioe Eng Dericks-Tan*: Metabolization of ethinyl-nor-testosterone acetate by female rat liver microsomes.
18. *D. Engelhardt, P. Unterburger and H. J. Karl*: Studies of C₁₉-steroid-enzyme activities in normal and pathological human liver tissue.
19. *R. Ghraf, E. R. Lax, H. Ockenfels and H. Schriefers*: Sex- and age-dependent hydroxylations of testosterone in the liver of normally developed rats and in animals with disturbed sexual development.
20. *B. P. Lisboa and J.-C. Plasse*: $\Delta 5-3\alpha$ -hydroxysteroid-dehydrogenase activity in the human fetal liver.
21. *H. Becker, E. Grabosch and K. Voigt*: Metabolism and mode of action of androgens in target tissues of male rats 1. Metabolism of 4α -androstano- 3β , 17β -diol in target organs and in peripheral tissues.
22. *H. Schmidt, G. v. Rotteck and K. D. Voigt*: Metabolism and mode of action of androgens in target tissues of male rats 2. Mode of action of 5α -androstano- 3β , 17β -diol in target organs and peripheral tissues.
23. *H.-G. Hoff, R. Ghraf and H. Schriefers*: Androgen-dependency of the sex-specific differentiation of the activity of enzymes involved in steroid metabolism.
24. *G. Trams, P. Brümmer and H. Maass*: Studies on the interrelationship between oestrogens and gestagens in the target tissue.
25. *Ch. Seyfried and H.-G. Kraft*: Nucleic acid metabolism in the rat uterus: effect of EMD 16.795, a competitive anti-oestrogen.

Renin, Angiotensin

26. *W. Vogt, Kh. R. Koczorek, H.-H. Vogt und M. Knedel*: Polypeptid-hormonnachweis durch Kupplung mit Diazoniumsalzen.
27. *A. Philippi, S. C. Lowder, F. Lamprecht and F. Gross*: Effects of posture and exercise on the urinary clearance of renin in man.
28. *H. P. Nast und A. Distler*: Untersuchungen über den Abbau von Angiotensin in menschlichen Erythrozyten.
29. *H. C. Siemensen*: Untersuchungen an der Ratte zur Bedeutung der Leber für die Renin-Angiotensin-Kinetik.
30. *H. Wernze, A. Seki and R. Jesse*: Hepatic renin extraction in hypertension and cirrhosis of the liver.
31. *R. Beckerhoff, J. A. Luetscher and W. Siegenthaler*: Changes in renin-angiotensin system induced by oral contraceptives.

Aldosteron

32. *W. Vetter, E. Freedlender and E. Haber*: Production and characterization of antibodies elicited by different aldosterone-protein conjugates.
33. *P. Vecsei, C. Akangbou, A. Joumaah and N. I. Sallowm*: Studies on antibodies against corticoid hormones.

34. *W. R. Külpmann, L. Siekmann and H. Breuer*: An improved gas chromatographic method for the determination of aldosterone in urine.
35. *K. A. Deck, P. K. Champion, D. R. Rovner and J. W. Conn*: Urinary free aldosterone in normal persons and in patients with primary aldosteronism.
36. *D. Lommer, A. Distler, T. Philipp and H. P. Wolff*: Secretion, distribution and turnover of aldosterone in essential hypertension, primary aldosteronism, and hypertension associated with renal artery stenosis.

Prolaktin

37. *M. L'Hermite, V. Stavric and C. Robyn*: Human pituitary prolactin during pregnancy and post partum as measured in serum by a radioimmunoassay.
38. *P. Berle und K.-D. Voigt*: Plasma-Prolaktinkonzentrationen beim Mammakarzinom der Frau.
39. *D. Schams, V. Reinhardt and H. Karg*: Effects of a synthetic ergot alkaloid on the peripheral blood level of prolactin in cows.
40. *R. Wenner und L. Varga*: Prolactinhemmung mittels Ergocryptin.
41. *M. Little*: The effect of prolactin and growth hormone preparations on the casein production in mouse mammary gland tissue explants.
42. *U. Hachmeister, R. Fahlbusch and K. v. Werder*: Ultrastructural identity of pituitary adenoma cells in Forbes-Albright syndrome and of adeno-hypophysal pregnancy cells.

Wachstumshormon

43. *K. v. Werder, M. Gottsmann, A. Souvatzoglou, P. Botterman and K. Schwarz*: Growth hormone and growth hormone-like immunoreactivity in man.
44. *P. H. Althoff, B. Schneider, K. M. Bartelt, K. Retiene und K. Schöffling*: Der Glucagon-Stimulationstest, eine Methode zur Klassifizierung der Akromegalien — eine primäre, hypophysäre und eine sekundäre, hypothalamische Form?
45. *A. von zur Mühlen, J. Köbberling and A. Bachmann*: The effect of repeated depot ACTH injections on arginine-induced HGH release in healthy subjects and patients with Addison's disease.
46. *W. Wiegelmann, H. G. Solbach, H. Bethge and H. Zimmermann*: Growth hormone response to insulin-induced hypoglycaemia in anorexia nervosa.
47. *H. Nowakowski, R. Kautzky, N. Stahnke and B. Regler*: Selective removal of pituitary adenomas in acromegaly.
48. *K. Hübner, K. H. Usadel and R. Schneider*: Histoautoradiographic investigation on the influence of hypophysectomy and STH-substitution on the regeneration of renal tubular epithelium following temporary ischemia.

Adiuretin

49. *H. D. Freisenhausen and H. Frahm*: Development of a radioimmunoassay for vasopressin.
50. *H. U.Tietze, A. Chattas and O. Oetliker*: Behavior of free water clearance in children with vasopressin-sensitive diabetes insipidus and in children with renal diabetes insipidus under treatment with carbamyl-dibenzo-azepine (Tegretal).

51. *F. Ublich, K. Loeschke and J. Eigler*: Antidiuretic effect of carbamazepin in central diabetes insipidus.
52. *K. Irmischer, W. Wiegelmann, H. Bethge, J. Kampffmeier, H. G. Solbach and H. Zimmermann*: Therapeutic response of central diabetes insipidus on nasal application of a new synthetic analogue of vasopressin (1-deamino-8-d-arginine-vasopressin (DDAVP)).

Gonadotropin-Releasing-Faktoren

53. *F. Enzmann, K. Geisen, R. Geiger, W. König and H. Wissmann*: Isolation and characterization of two different porcine hypothalamic preparations with LH-RH-like activity and their comparison with synthetic LH-RH.
54. *J. Sandow, A. V. Schally, H. G. Schröder, W. Heptner and F. Enzmann*: FSH-releasing activity of a synthetic decapeptide (LH/FSH-RH).
55. *S. Heller, H. D. Schlumberger, F. Kümmel and U. Maier*: FSH-release by L-3-O-methyl-dopa and L-dopa.
56. *H. G. Schröder, K. Engelbart, J. Sandow and W. Heptner*: The effect of synthetic LH/FSH-RH on the maturation of infantile female rats.
57. *A. von zur Mühlen and J. Köbberling*: The effect of synthetic luteinizing hormone releasing factor (LH-RF) on the release of hormones of the adenohipophysis in normal men.
58. *K. Seeger, J. Sandow, H. G. Schröder and W. Heptner*: Effect of synthetic LH/FSH-RH on LH-release and ovarian function in sheep.
59. *H. Kubl, W. Bickel, J. Enenkel, G. Hauptmann, P. Chandra and H.-D. Taubert*: Contrasting effects of some steroidal hormones upon L-cystine-aminopeptidase activity in the hypothalamus of immature male und female rats.
60. *A. Souvatzoglou, P. Bottermann, K. v. Werder and K. Schwarz*: Effect of L-dopa on LH and GH levels in man.
61. *F. Lehmann, F. Peters, M. Breckwoldt and G. Bettendorf*: Plasmaprogestins during infusion of prostaglandin F_{2α}

Calcitonin, Parathormon

62. *F. Gniffke, P. O. Schwillle and H. Bunte*: Ionized calcium by selective electrode assay, normal range, loading tests.
63. *K. Paschen, C. Fuchs and R.-D. Hesch*: A simple and precise method for determination of ionized calcium in serum by an ionselective electrode.
64. *R. Hehrmann, J. Hagemann and R. Montz*: Studies on endocrine regulations of intestinal calcium absorption.
65. *M. Hüfner, R.-D. Hesch, H. Schmidt, M. Hasenjäger, K. Winckler, W. Creutzfeldt and K. Paschen*: The gastrointestinal effects of calcitonin.
66. *C. Lozano-Tonkin, H.-P. Kruse und H.-R. Montz*: Auswertung klinischer und mikroradiographischer Befunde beim Hyperparathyreoidismus sowie ihre Korrelation zu Ergebnissen der ⁴⁷Calcium-Kinetik.
67. *R. Montz, R. Hehrmann, F. Kublencordt and C. Schneider*: ⁴⁷Calcium kinetics in the evaluation of parathyroid function.

68. *E. Altenähr, R. Hehrmann and H.-P. Kruse*: Correlation of ultrastructural criteria of human parathyroid gland function with calcium and bone metabolism in hyperparathyroidism.
69. *G. Delling*: Effect of calcitonin on increased bone resorption and osteoporotic changes induced by chronic acid feeding in the rat.
70. *H. van Lessen, G. Rodeck and H. Bechtelsheimer*: Medullary carcinoma of the thyroid and hyperparathyroidism.
71. *F. Raue, H. Minne, S. Bellwinkel and R. Ziegler*: Studies on the hypercalcemic syndrome in rats with Walker carcinosarcoma 256.

HVL-NNR-System

72. *K. H. Voigt, H. L. Fehm and E. F. Pfeiffer*: Extraction of ACTH from plasma for use in radioimmunoassay.
73. *H. L. Fehm, K. H. Voigt and E. F. Pfeiffer*: Spontaneous and stimulated secretion of immunoreactive ACTH in man.
74. *J. Homoki and W. Teller*: Studies on cortisol/corticosterone ratio in plasma as indirect measure of 17 α -hydroxylase activity during childhood.
75. *W. Winkelmann, D. Hessen and R. Mies*: 11-desoxycortisol and cortisol production in congenital adrenocortical syndrome.
76. *G. Zieger*: Features of growth in the capsular area of the human adrenal cortex.
77. *K. J. Beck, G. Leyendecker and W. Nocke*: Comparison of oestrogen concentration in serum and cervical mucus.
78. *Ch. Lauritzen and W. D. Lehmann*: The fetoplacental DHA load test: bases, results, interpretation.
79. *K. Wenzel, W. Obolensky and P. Vullièmoz*: DHEAS-test and nutritional insufficiency of the placenta.
80. *W. Obolensky and K. Wenzel*: Changes in estriol concentration in amniotic fluid after DHEAS-loading.
81. *W. Geiger and W. Post*: The distribution of HCG, HCS, STH and TSH to various physiological fluids of mother and fetus in the last trimester of pregnancy.
82. *B. Hoffmann, D. Schams and H. Karg*: Simultaneous determination of progesterone, total oestrogens, corticoids, prolactin and LH in peripheral blood of the cow around parturition.

Katecholamine

83. *R. Gugler, J. H. Hengstmann and H. J. Dengler*: Clinical and biochemical findings in a malignant pheochromocytoma treated with alpha-methyl-*p*-tyrosine.
84. *W. Gusek und M. Fock*: Ultrastruktur hormondifferenter Phäochromozytome.
85. *P. Ball, R. Knuppen, W. Wennrich and H. Breuer*: Interactions between oestrogens and catecholamines: influence of oestrogens on the effect of catecholamines on blood pressure in rats.
86. *F. W. Schmahl, F. Buchholz, K. Huth and B. Urbaschek*: Effects of norepinephrine and orciprenaline on endotoxin-induced alterations of blood lipids.

Diabetes mellitus

87. *H. Schatz, Y. Abdel Rahman, M. Hinz, V. Maier, C. Nierle and E. F. Pfeiffer*: The effect of growth hormone (GH) and adrenocorticotrophic hormone (ACTH) on secretion and biosynthesis of insulin in isolated islets of the rat.
88. *H. Laube, E. Grajeda, R. Fussgänger and E. F. Pfeiffer*: Influence of adrenergic receptors on glucose-induced hyperinsulinemia of obese mice.
89. *W. Fechner and M. L'age*: Development of acute diabetic ketoacidosis and its correlation to plasma corticosterone levels in the alloxanized rat.
90. *G. Klöppel, E. Altenähr and G. Freytag*: Electronmicroscopic studies on cellular autoimmunity against insulin in the pancreas of rabbits.
91. *H. v. Lilienfeld-Toal, M. Hüfner, C. Fuchs and R. D. Hesch*: Radio-receptorassay for 3', 5'-AMP.
92. *P. O. Schwille and B. Barth*: Clearance and stop flow studies in glucagon mediated hyperelectrolyturia.

Androgene, Hirsutismus

93. *E. Nieschlag, D. L. Loriaux and M. B. Lipsett*: Radioimmunoassay for dehydroepiandrosterone and its sulfate: effect of ACTH, gonadotropins and dexamethasone on plasma levels.
94. *L. Penzes and G. W. Oertel*: Estimation of oxosteroids by densitometry of suitable derivatives.
95. *W.-D. Hetzel, R. Kiehnsherf und W. Staib*: Extraktion von Steroidkonjugaten durch flüssige Ionenaustauscher.
96. *D. Knorr und O. Butenandt*: Hodenfunktionstest durch HCG-Stimulation und Plasmatestosteronbestimmung in der Vorpubertät.
97. *K.-P. Littmann und H. Gerdes*: Testosterontagesrhythmik und HCG-Stimulation bei akuten und chronischen Lebererkrankungen.
98. *W. M. Teller and H. Ferlemann*: The influence of human chorionic gonadotropin (HCG) on urinary steroid patterns in prepubertal boys with distopic testes.
99. *K. H. Usadel, U. Schwedes, C. Schade, U. Leuschner und K. Schöffling*: Nervenfasern in den Tubuluswänden der Hoden von Klinefelter-Patienten. Histochemische und elektronenoptische Befunde.
100. *P. Göbel, J. Cyran, V. Frick, A. E. Schindler und M. Schwarz*: Anti-androgentherapie des Hirsutismus.

Gonadotropine

101. *D. Graesslin, H. Ch. Weise, W. Braendle and G. Bettendorf*: Isolation and partial characterisation of human pituitary FSH and LH.
102. *L. Wildt, G. Leyendecker and W. Nocke*: Studies on gel filtration of plasma LH and FSH.
103. *H. Ch. Weise, D. Graesslin, P.-J. Czygan and W. Braendle*: Biological, immunological and physicochemical properties of several different HCG components.
104. *W. Braendle, P.-J. Czygan, D. Graesslin and H. Ch. Weise*: Distribution and binding of ^{131}J -HCG in different organs of the female rat.

105. *W. Geiger*: The role of standard preparations and antisera in the differences of "absolute" LH-measurement.
106. *W. Heptner, E. Niemann, J. Sandow, N. Seber and F. Enzmann*: Studies on the reactivity of fractions of ¹²⁵I-labelled ovine LH in radioimmunoassay and bioassay.
107. *H. Hildebrandt, M. Vekemans and C. Robyn*: Radioimmunoassays for human chorionic gonadotropin (HCG) and human pituitary luteinizing hormone (HLH) using the double antibody method: comparative evaluation of equilibrium and non-equilibrium conditions.
108. *P.-J. Czygan*: Different feedback action of oestrogens in pre- and post-menopausal women.
109. *D. Lindenmeyer and J. Tamm*: Plasma levels of LH/HCG in male subjects following intravenous administration of HCG or oral treatment with Clomiphen.
110. *D. Schams, H. D. Butz and H. Karg*: Sex differences on plasma luteinizing hormone level from birth to puberty in the bovine.

Med. Univ.-Klinik Freiburg¹, FB Biol. Univ. Konstanz²
und II. Med. Univ.-Klinik München³

SCHILDDRÜSENHORMONWIRKUNG IM RIBOFLAVINMANGEL

J. Nolte¹, D. Brdiczka², P. C. Scriba³ und H. W. Staudte

Seit den Arbeiten von *Lee* und *Lardy* wird der m-Glycerophosphat-Dehydrogenase (m-GDH), einem Flavoenzym des Glycerin-1P-Cyclus, bei der schilddrüsenhormoninduzierten Erhöhung der basalen Stoffwechselrate eine besondere Bedeutung beigemessen. Im Gegensatz zu diesen Befunden an der Ratte fand sich jedoch weder beim Menschen noch beim Meerschweinchen ein T₃-induzierbarer Anstieg der m-GDH. (1). In der vorliegenden Arbeit soll versucht werden festzustellen, inwieweit eine T₃-induzierte Erhöhung der basalen Stoffwechselrate bei der Ratte vom Anstieg der m-GDH abhängig ist.

120 g schwere Ratten wurden 82 Tage riboflavin-mangel-ernährt und anschließend mit und ohne Riboflavin (rf)-Substitution hyperthyreot gemacht. In den verschiedenen Versuchsstadien wurde der Grundumsatz bestimmt. In Leber, Herz, m. rectus, m. soleus und Gehirn wurden Flavoenzyme wie m-GDH, Flavinstoffwechselenzyme (Flavokinase) und Enzyme der Glykolyse, Citratcyclus und Fettsäureoxydation gemessen.

Die basale Stoffwechselrate sowie alle Flavoenzyme fielen im rf-Mangel ab, z. T. sehr organunterschiedlich. Nach 4tägiger rf-Substitution erreichten Aktivitäten der Flavoenzyme die der Kontrollen. Nach T₃-Gabe stiegen die basalen Stoffwechselraten der rf-Mangeltiere auf die der hyperthyreoten Kontrolltiere an, während die Aktivitäten der m-GDH nur $\frac{1}{3}$ – $\frac{1}{5}$ der hyperthyreoten Kontrollen erreichte. Auch hier fanden sich deutliche Organunterschiede. Es wird angenommen, daß auch bei der Ratte der extra-intramitochondriale H₂-Transfer durch den Glycerin-1P-Cyclus nicht die alleinige Voraussetzung für den erhöhten basalen Stoffwechsel darstellt, sondern daß auch andere H₂-Transfer-Cyclen, wie der Malat-Shuttle, hierfür in Frage kommen. Auf Veränderungen der T₃-T₄-Serumspiegel im rf-Mangel wird eingegangen.

-
1. *Nolte, J., Pette, D., Bachmaier, B., Kiefhaber, P., Schneider, H. und Scriba, P. C.:* Europ. J. Clin. Invest. Nr. 3, 1972. Enzyme response to thyrotoxicosis and hypothyroidism in human liver and muscle: Comparative aspects.