

## Nedostatek androgenů a hormonální substituční léčba

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### LITERATURA

- 1 Vermeulen A, Rubens R, Verdonck L. Testosterone secretion and metabolism in male senescence. *J Clin Endocrinol Metab* 1972; **34**: 730–5
- 2 Gray A, Berlin JA, McKinlay JB, Longcope C. An examination of research design effects on the association of testosterone and male aging: results of a meta-analysis. *J Clin Epidemiol* 1991; **44**: 671–84
- 3 Morley JE, Kaiser FE, Perry HM III *et al*. Longitudinal changes in testosterone, luteinizing hormone, and follicle-stimulating hormone in healthy older men. *Metabolism* 1997; **46**: 410–3
- 4 Zmuda JM, Cauley JA, Kriska A, Glynn NW, Gutai JP, Kuller LH. Longitudinal relation between endogenous testosterone and cardiovascular disease risk factors in middle-aged men. A 13-year follow-up of former Multiple Risk Factor Intervention Trial participants. *Am J Epidemiol* 1997; **146**: 609–17
- 5 Harman SM, Metter EJ, Tobin JD, Pearson J, Blackman MR. Longitudinal effects of aging on serum total and free testosterone levels in healthy men. *J Clin Endocrinol Metab* 2001; **86**: 724–31
- 6 Korenman SG, Morley JE, Mooradian AD *et al*. Secondary hypogonadism in older men: its relation to impotence. *J Clin Endocrinol Metab* 1990; **71**: 963–9
- 7 Gray A, Feldman HA, McKinlay JB, Longcope C. Age, disease, and changing sex hormone levels in middle-aged men: results of the Massachusetts Male Aging Study. *J Clin Endocrinol Metab* 1991; **73**: 1016–25
- 8 Turner HE, Wass JA. Gonadal function in men with chronic illness. *Clin Endocrinol (Oxf)* 1997; **47**: 379–403
- 9 Morales A, Heaton JP, Carson CC III. Andropause: a misnomer for a true clinical entity. *J Urol* 2000; **163**: 705–12
- 10 Feldman HA, Longcope C, Derby CA *et al*. Age trends in the level of serum testosterone and other hormones in middle-aged men: longitudinal results from the Massachusetts Male Aging Study. *J Clin Endocrinol Metab* 2002; **87**: 589–98
- 11 Spark RF, White RA, Connolly PB. Impotence is not always psychogenic. Newer insights into hypothalamic-pituitary-gonadal dysfunction. *JAMA* 1980; **243**: 750–5
- 12 Slag MF, Morley JE, Elson MK *et al*. Impotence in medical clinic outpatients. *JAMA* 1983; **249**: 1736–40
- 13 Nickel JC, Morales A, Condra M, Fenemore J, Surridge DH. Endocrine dysfunction in impotence: incidence, significance and cost-effective screening. *J Urol* 1984; **132**: 40–3
- 14 Guay AT, Bansal S, Heatley GJ. Effect of raising endogenous testosterone levels in impotent men with secondary hypogonadism: double blind placebocontrolled trial with clomiphene citrate. *J Clin Endocrinol Metab* 1995; **80**: 3546–52
- 15 Govier FE, McClure RD, Kramer-Levien D. Endocrine screening for sexual dysfunction using free testosterone determinations. *J Urol* 1996; **156**: 405–8
- 16 Araujo AB, O'donnell AB, Brambilla DJ *et al*. Prevalence and incidence of androgen deficiency in middle-aged and older men: estimates from the Massachusetts Male Aging Study. *J Clin Endocrinol Metab* 2004; **89**: 5920–6
- 17 Gooren L. Androgen deficiency in the aging male: benefits and risks of androgen supplementation. *J Steroid Biochem Mol Biol* 2003; **85**: 349–55
- 18 Tan RS. Andropause. introducing the concept of 'relative hypogonadism' in aging males. *Int J Impot Res* 2002; **14**: 319
- 19 Isidori AM, Giannetta E, Gianfrilli D *et al*. Effects of testosterone on sexual function in men: results of a metaanalysis. *Clin Endocrinol (Oxf)* 2005; in press
- 20 Isidori AM, Giannetta E, Greco EA *et al*. Effects of testosterone on body composition, bone metabolism and serum lipid profile in aging men: results in a meta-analysis. *Clin Endocrinol (Oxf)* 2005; in press
- 21 Isidori AM, Lenzi A. Risk factors for androgen decline in older males. lifestyle, metabolic disease and drug. *J Endocrinol*

- Invest* 2005; **28**(suppl 3): 14–23
- 22 **Wespes E, Schulman CC.** Male andropause. Myth, reality and treatment. *Int J Impot Res* 2002; **14**: S93–S98
- 23 **Tenover JL.** Testosterone and the aging male. *J Androl* 1997; **18**: 103–6
- 24 **Zirkin BR, Chen H.** Regulation of Leydig cell steroidogenic function during aging. *Biol Reprod* 2000; **63**: 977–81
- 25 **Smith TP, Suliman AM, Fahie-Wilson MN, McKenna TJ.** Gross variability in the detection of prolactin in sera containing big big prolactin (macroprolactin) by commercial immunoassays. *J Clin Endocrinol Metab* 2002; **87**: 5410–5
- 26 **Isidori AM, Caprio M, Strollo F et al.** Leptin and androgens in male obesity: evidence for leptin contribution to reduced androgen levels. *J Clin Endocrinol Metab* 1999; **84**: 3673–80
- 27 **Isidori AM, Strollo F, More M et al.** Leptin and aging. correlation with endocrine changes in male and female healthy adult populations of different body weights. *J Clin Endocrinol Metab* 2000; **85**: 1954–62
- 28 **Vermeulen A.** Androgen replacement therapy in the aging male – a critical evaluation. *J Clin Endocrinol Metab* 2001; **86**: 2380–90
- 29 **Algarte-Genin M, Cussenot O, Costa P.** Prevention of prostate cancer by androgens: experimental paradox or clinical reality. *Eur Urol* 2004; **46**: 285–94
- 30 **Nieschlag E, Behre HM, Bouchard P et al.** Testosterone replacement therapy: current trends and future directions. *Hum Reprod Update* 2004; **10**: 409–19
- 31 **Wang C, Cunningham G, Dobs A et al.** Long-term testosterone gel (AndroGel) treatment maintains beneficial effects on sexual function and mood, lean and fat mass, and bone mineral density in hypogonadal men. *J Clin Endocrinol Metab* 2004; **89**: 2085–98
- 32 **Dhindsa S, Prabhakar S, Sethi M, Bandyopadhyay A, Chaudhuri A, Dandona P.** Frequent occurrence of hypogonadotropic hypogonadism in type 2 diabetes. *J Clin Endocrinol Metab* 2004; **89**: 5462–8
- 33 **Malkin CJ, Pugh PJ, Jones RD, Jones TH, Channer KS.** Testosterone as a protective factor against atherosclerosis – immunomodulation and influence upon plaque development and stability. *J Endocrinol* 2003; **178**: 373–80
- 34 **Grinspoon S, Corcoran C, Askari H et al.** Effects of androgen administration in men with the AIDS wasting syndrome. A randomized, double-blind, placebocontrolled trial. *Ann Intern Med* 1998; **129**: 18–26
- 35 **Grinspoon S, Corcoran C, Stanley T, Baaj A, Basgoz N, Klibanski A.** Effects of hypogonadism and testosterone administration on depression indices in HIV-infected men. *J Clin Endocrinol Metab* 2000; **85**: 60–5
- 36 **Rhoden EL, Morgentaler A.** Risks of testosterone-replacement therapy and recommendations for monitoring. *N Engl J Med* 2004; **350**: 482–92
- 37 **Morelli A, Filippi S, Mancina R, et al.** Androgens regulate phosphodiesterase type 5 expression and functional activity in corpora cavernosa. *Endocrinology* 2004; **145**: 2253–63
- 38 **Aversa A, Bruzziches R, Spera G.** A rationale for the use of testosterone ‘salvage’ in treatment of men with erectile dysfunction failing phosphodiesterase inhibitors. *The Endocrinologist* 2005; **15**: 99–105

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Zkratky:

ED, erectile dysfunction; TRT, testosterone-replacement therapy; DHT, dihydrotestosterone; SHBG, sex hormonebinding globulin.