others showed symptoms consistent with inadequate follicle maturation, luteal phase defects, and premature luteinization. In contrast, 89 cycles from 133 combined buserelin/hMG/hCG treatment cycles (66.9%) appeared to be normal, with no evidence of premature luteinization, and 21 patients became pregnant. These data indicate that the likelihood of group II World Health Organization (WHO) patients becoming pregnant with hMG/hCG therapy may be enhanced when endogenous gonadotropin secretion is suppressed at the same time.

Correlation of human sperm motility characteristics with an in vitro cervical mucus penetration test

Keel BA; Webster BW
Department of Obstetrics and Gynecology, The University of Kansas School of Medicine, The Center for Reproductive Medicin, Wichita, KS, USA

FERTIL. STERIL.; 49/1 (138—143)/1988/

Semen analysis was performed on 226 ejaculates by an integrated microcomputerized system employing the multiple-exposure photography (MEP) method. Mucus penetration tests were performed in vitro using commercial preparations of bovine cervical mucus. A highly significant ($P < 0.001$) correlation between mucus penetration distance and sperm count ($r = 0.582$), motility ($r = 0.357$), velocity ($r = 0.569$), motile density ($r = 0.582$), motility index ($r = 0.467$), and morphology ($r = 0.383$) was observed. Increased percentages of immature germ cells ($r = -0.318$) and bent-tailed sperm ($r = -0.221$) were the most strongly correlated with mucus penetration. Approximately 10% to 15% of patients with otherwise normal semen parameters displayed poor penetration of mucus. Conversely, 5% to 40% of patients with abnormal semen parameters displayed excellent penetration of the mucus. Motile density and velocity demonstrated the strongest relationship with the outcome of the mucus penetration test. These results suggest that a significant subpopulation of patients can be identified as having inadequate (or adequate) penetration of mucus with otherwise normal (or abnormal) motility characteristics.

Pregnancy caused by sperm from vasa efferentia

Silber SJ
St. Luke's Hospital, St. Louis, MO, USA

FERTIL. STERIL.; 49/2 (373—375)/1988/

It has long been assumed that sperm must pass through a certain length of the epididymis to mature, gain progressive motility, and become capable of fertilization. All animal models thus far studied have confirmed that sperm which have not gone through the epididymis are only capable of minimal vibratory movement and are not capable of fertilization. When sperm are sampled from the head of the epididymis in intact animals, many will have circular swimming motions, but none will have forward progressive motility and they will not fertilize. When sperm are sampled from the corpus epididymis, there is a gradually increasing velocity of unidirectional progression. The key unanswered questions, however, are whether the factors governing this maturation process are intrinsic to the sperm and occur over a period of time, or reside specifically in the epididymis, and whether sperm transit through the epididymis is specifically required for fertility. This report discusses two patients who had blockage all the way up to the vasa efferentia and who underwent and end-to-end anastomosis of the vas deferens to one of the vasa efferentia flush against the testicular surface, with subsequent normal semen parameters, and pregnancy.

Effect of prostaglandins on human sperm function in vitro and seminal adenosine triphosphate content

Gottlieb C; Svanborg K; Eneroth P; Bygdeman M
Department of Obstetrics and Gynecology, Karolinska Hospital, S-104 01 Stockholm, Sweden

FERTIL. STERIL.; 49/2 (322—327)/1988/

The aim of the present study was to evaluate the effect of addition of physiologic amounts of different prostaglandins normally present in semen, on sperm motility, on sperm penetration capacity in cervical mucus in vitro, and on the adenosine triphosphate (ATP) concentration in semen. Semen samples were obtained from volunteers who were attending the fertility outpatient clinic. Sperm motility was measured on a video-recorder with a built-in timer, sperm penetration by the Kremer test, and ATP by bioluminescence assay. The addition of 19-hydroxy prostaglandin (PG) E to ejaculates positively stimulated sperm motility and sperm penetration capacity. The opposite effect was observed with 19-hydroxy PGF. PGE_1, PGE_2 and PGF (2α) had no effect on either parameter, while PGF(1α) reduced the sperm motility. The addition of 19-hydroxy PGE to ejaculates increased and the addition of 19-hydroxy PGF reduced semen concentrations of ATP. However, only the last-mentioned effect was statistically significant ($P < 0.05$). It is suggested that, in particular, 19-hydroxy PGE and 19-hydroxy PGF are important regulators of sperm motility and that the effect may be mediated via effects on the ATP content in the spermatozoa.

Role of temperature in regulation of spermatogenesis and the use of heating as a method for contraception

Kandeel FR; Swerdloff RS
Division of Endocrinology, Department of Medicine, Harbor-University of California Los Angeles Medical Center, Torrance, Ca, USA

FERTIL. STERIL.; 49/1 (1—23)/1988/

A large number of studies was carried out over most of this century to investigate and establish relationships between testicular temperature and sperm production, sperm structure, and testicular morphology. These studies have established the vulnerable nature of spermatogenesis to relatively small increases in testicular temperature. Other physical properties of electromagnetic and ultrasound waves have additive or synergetic effects to those of heat and allow disruption of the spermatogenic processes at minimal temperature elevations. Knowledge acquired to date suggests the potential viability of testicular heating as a reversible method for male contraception in the human. Application, however, has been scarce. Before heating techniques can be widely advocated at a safe, reliable,

reversible, and hopefully self-applied method of contraception, several questions have to be answered satisfactorily. 1. What are the lowest effective doses and the lowest frequency of application of each method of testicular heating necessary for inducing and maintaining a reliable infertile state? 2. Does adaptation and return of testicular function to a potentially fertile level occur with long-term application of any given method? Conversely, does the long-term exposure to any effective physical agent lead to permanent damage or compromise of testicular elements or functions? 3. What is the exact mutagenic potential of each physical agent (thermal or non-thermal) on the human gonads? What is the exact risk for congenital anomalies in progenies produced by simple heat, electromagnetic waves, and/or ultrasound-exposed germ cells? 4. Does the exposure to simple heat, electromagnetic waves, and/or ultrasound induce significant changes in biologic constituents of human semen other than spermatozoa? If so, are these changes reversible upon cessation of exposure? 5. Does the scrotal warm sensory input rise during testicular heating to a level that is sufficient to alter body core temperature? If so, are there any metabolic (e.g., increased metabolic efficiency and increased body weight) or non-metabolic consequences to such alterations? Fortunately, the answer to many of these questions can now be easily obtained through application of a number of recently developed and widely available techniques. For example, determination of parameters such as hamster egg and cervical mucus penetration, hypo-osmotic swelling, acrosomal reaction, and free oxygen radical formation could help to characterize mechanisms of induced functional impairment in physical agent-exposed sperm. These studies could also establish the minimal effective dose of each agent and the frequency of exposure to it required to induce and maintain an adequate but safe and reversible state of infertility. The rapidly advancing knowledge of biologic constituents of human semen and the increasingly available detection methods of these constituents will undoubtedly enhance such developments. Moreover, application of recently evolved techniques of genetic mapping, sperm preservation, ovum retrieval, and in vitro fertilization could lead to establishing a valid means of testing for potential mutagenic changes in exposed germ cells, as well as to identifying the incidence of congenital anomalies in progenies produced by these sperms.

Reproductive performance following conservative microsurgical management of tubal pregnancy

Oelsner G; Morad J; Carp H; et al

Department of Obstetrics and Gynecology, Tel Aviv University, Sackler Faculty of Medicine, Sheba Medical Center, Tel Hashomer 52621, Israel

BR. J. OBSTET. GYNAECOL.; 94/11 (1078—1083)/1987/

Between 1981 and 1986, 58 women underwent conservative surgery for ectopic pregnancy; 30 had both tubes present, and 28 had the operation on their single tube. Twenty-five of the 20 women with both tubes present desired pregnancy; 17 (68%) conceived again, 14 (56%) had at least one intrauterine pregnancy and 3 (12%) had a repeat extrauterine pregnancy. Twenty-six of the women with a solitary tube desired pregnancy, 12 (46%) of them had at least one intrauterine pregnancy, and 10 (38.5%) had a repeat extrauterine pregnancy. It was concluded that the incidence of intrauterine pregnancy after conservative surgery in patients with both tubes present is not lower that after radical surgery, and that the incidence of extrauterine pregnancy is not higher. The intrauterine pregnancy rate in patients with a solitary tube is high and still higher than the best results available with in-vitro fertilization and embryo transfer. Therefore conservation surgery is indicated in these patients despite the high incidence of repeat extrauterine pregnancy. Since most of the patients who conceived did so during the first year following the operation, we recommend that patients try to conceive immediately.

GYNECOLOGICAL ENDOCRINOLOGY

Secretory dynamics of bioactive and immunoreactive prolactin in polycystic ovary syndrome

Anderson RE; Ben-Rafael Z; Flickinger GL; et al

University of Southern California School of Medicine, Los Angeles County, Women's Hospital, Los Angeles, CA 90033, USA

FERTIL. STERIL.; 49/2 (239—243)/1988/

To further investigate prolactin (PRL) secretion in polycystic ovary syndrome (PCO), the authors evaluated immunoreactive (immuno) and bioactive (bio) PRL levels in the basal state and in response to provocative testing with intravenous dopamine (DA), metoclopramide (MCP), and gonadotropin-releasing hormone (GnRH), before and after disulfiram. Basal measurements of immuno-PRL, bio-PRL, and the ratio of bio/immuno-PRL were similar in PCO and controls. The immuno-PRL, decrement after DA was greater than that of bio-PRL in both groups ($P < 0.05$). After MCP, immuno-PRL increased more than bio-PRL in PCO ($P < 0.01$), and this immuno-PRL increment was greater than that of controls ($P < 0.05$). Bio-PRL and immuno-PRL increased after GnRH in PCO, but not controls, and these responses were inhibited by disulfiram. These data confirm PRL hypersecretion in some women with PCO, which is better expressed by immunoreactivity than bioactivity. Given the assay systems and patients studied, bioactivity of PRL appears to be normal in PCO.

Effects of subcutaneous oestradiol implants on ovarian activity

Magos AL; Collins WP; Studd JWW

PMS Clinic, Department of Gynaecology, Dulwich Hospital, London, UK

BR. J. OBSTET. GYNAECOL.; 94/12 (1192—1198)/1987/

The effects of subcutaneous oestradiol implants on ovarian activity were investigated in 14 ovulating premenopausal women. Treatment with either 100 mg or 150 mg oestradiol was combined with cyclical oral norethisterone from days 20 to 26 of the cycle to ensure regular withdrawal periods and prevent endometrial hyperplasia. Ovarian function was monitored by regular pelvic ultrasonography and urinalysis over a period of nine cycles. During the first three cycles after hormone implan-