represented the country at the Meeting of the IMU General Assembly in Santiago de Compostela, Spain in August 2006 and bid successfully for ICM 2010. An Executive Organizing Committee was set up and has been meeting regularly to oversee the preparations for ICM 2010. The event will take place between the 19 and 27 August 2010 at the Hyderabad International Convention Centre.

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Shanta S. Rao Award

The Thirteenth Memorial Award was conferred upon Prof. A. Jagannadha Rao, Raja Ramanna Fellow, Department of Biochemistry, Indian Institute of Science, Bangalore, at the National Institute of Research in Reproductive Health (NIRRH) on 21 April 2009. Shanta S. Rao was Founder Director of the Institute for Research in Reproduction (NIRRH, Indian Council of Medical Research (ICMR), Mumbai). The oration award dedicated to her memory was instituted in 1980 to be awarded for eminent scientists who have made pioneering contributions to the field of reproduction.

Shanta S. Rao began her research career as a biochemist in 1956 at the Indian Cancer Research Centre in the then Contraceptive Testing Unit (CTU). In 1963 this unit came to be known as the Reproductive Physiology Unit (RPU), which eventually under her leadership was expanded in February 1970 as the Institute for Research in Reproduction (IRR). It was her singlehanded effort that led to the establishment of IRR as a permanent institute under ICMR, dedicated to the field of reproduction. She remained its Founder Director till her untimely demise in December 1979, at the age of 56.

In later years as human reproduction gained greater national relevance, the institute mandate was expanded and it was renamed in July 2002 as National Institute of Research in Reproductive Health.

There have been several problems in developing a reversible male contraceptive till now. Research scientists opt for blockade of follicle stimulating hormone (FSH) or FSH receptors; interfering with sperm maturation or interfering with estrogen hormone action or by immunization against epididymal or sperm specific proteins. Several studies on epididymal functions and sperm maturation have shown that epididymis could be one of the best target organs of male contraception. According to Jagannadha Rao too, blockade of epididymal functions could be a likely contraceptive target.

In his oration lecture, Rao presented his work on the insights into the role of FSH and estrogen in regulation of epididymal function in monkeys and rodents. Efforts are also in progress to establish the role of estrogen in regulation of genes involved in fluid absorption in epididymis using rat and monkey as a model.

Epididymis is a part of the male reproductive system; a tightly-coiled tube connecting the efferent ductules from the rear of each testis to its vas deferens. It is divided into three parts, caput – head, corpus – body and cauda – tail. Sperm formed in the testis, the male gonad, enter the caput epididymis, go to the corpus, and finally reach the cauda region, where they are stored. Sperm entering the caput epididymis are immature and immotile; they lack the ability to swim forward and fertilize the ova or egg. During their transit in the epididymis, these undergo maturation to be able to fertilize the egg. The function of efferent ductules (ED) is mainly sperm transport and water resorption.

In a study carried out by Rao, when immature rats and adult bonnet monkeys were deprived of FSH, degeneration or atrophy, especially of the cauda region was observed. This showed that epididymis is a direct target for FSH action and that FSH plays a role in regulation of growth of the epididymis.

The fact that estrogen is suggested to play an important role in sperm maturation, shows that there may be a possibility of interfering with estrogen action at the epididymal level. The best way to study the effect of lack of estrogen on epididymis is to use estrogen receptor (ER) antagonists. Rao's research, which involved chronic administration ICI 182870, a specific estrogen receptor antagonist, in adult male bonnet monkey, revealed a drastic decrease in sperm motility. ICI treatment in male rats also led to decreased fertility. Similarly, following chronic administration of TMX (tamoxifen), another ER receptor antagonist, the adult male bonnet monkeys were found to be infertile with severe abnormalities in sperm morphology and decreased motility.

When ICI was administered to male mice for 35 days, it produced α-Estrogen Receptor Knockout mice (α ERKO-effect). Impaired sperm production in male αERKO mice was observed and this was possibly due to the disruption of estrogen action.

In another study, ICI treatment on the caput region of the bonnet monkey epididymis was examined. For the first time, evidence was provided by Rao about the presence of estrogen receptors, ER-α and -β, in all the three regions; caput, corpus and cauda of the bonnet monkey epididymis.

According to Rao, among the various approaches for male contraception, immunization using either FSH or FSH receptors or peptides appears effective as the efficacy and reversibility have been clearly established. The practical application of methods of male contraception based on the above findings may take time and considering this the option left for male contraception for the time being is the age-old approach of barrier method or vasectomy.

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