MALE AND FEMALE IMMUNOLOGIC INFERTILITY

By : Dr J.José WOLOMBY
(Kinshasa , R.D. Congo)

Tutor : Dr A. de AGOSTINI
(Geneva, Switzerland)
INTRODUCTION

• Infertility prevalence : 10 to 30 %
• Unexplained infertility : 15 %

ASA and unexplained infertility :
  Men: 3 to 15 %
  Women: 13 to 80 %

• Purpose : Ag tolerance, its broken-down, pathogenesis of infer, assays and ttt.
MATERIAL AND METHODS

- Three libraries:
  - Faculty of Medicine
  - WHO
  - Dept. Ob/Gyn

- Computer/Medline
  - Articles selected:
    - from journals
    - ordered
    - requested
RESULTS : Antigens tolerance in Male

• Testis antigens: balance between orchitogenetic T cells- regulator T cells.
• Sperm antigens:
  - blood-testis barrier.
  - down-regulation of cell-mediated immune system
  - humoral mediators.
Tolerance antigens in Female

- Ovarian antigens: balance between oophoritogenic T cells - suppressor T cells
  - Sperm antigens: - sperm flushing
    - minority gains Fallopian
    - sperm phagocytosis
    - immunosuppressive factor
  integrity of mucosal epithelium
  - genetic influences
Occurrence of immune disease

- ORCHITIS
  - Necrosis
  - Atrophy
- OOPHORITIS: POF
  - OHS/oocyte retrieval

Pathogenic self reactive T cells

Regulator T cells

Imbalance
Production of antisperm antibodies (ASA)

- Male:
  - Testicular trauma
  - Vas occlusion
  - Infection
  - Cancer
  - Cryptorchidism
  - Varicocele

- Female:
  - Disruption of mucosal layer
  - Lymphocytes in semen
  - Ab-bound sperm
  - Abnormal/senescent sperm
  - Gastro-intestinal route
  - Sperm within peritoneal cavity
Pathogenesis of immunologic infertility

• Clear if testicular atrophy or POF; unclear if ASA induced infertility: disordered spermatogenesis. Impairment of sperm transport in male reproductive tract, autoagglutination, sperm cytotoxicity, phagocytosis, cervical mucus migration, sperm capacitation, sperm-ovum interaction, embryo development, implantation….
Laboratory assays

- Immobilization test: S.I.T.
- Antibody fluorescence: I.F, flow cytometry
- Colorimetry: ELISA
- RIA: Radiolabelled antiglobulin test.
Treatment of immunologic infertility

• Testicular or ovarian failure: ART? Adoption?

• ASA induced infertility:
  Suppression of ASA production: corticoids
  Reduction of ASA production: condom
  Decreasing ASA effects: washing, swim-up
  Selection of non-bound sperm: split ejaculate, immunodepletion.

ART: IVF, GIFT, micromanipulation...
DISCUSSION: Ovarian hyperstimulation/Oocyte retrieval

- Occurrence of POF after IVF attempts:
  - Repeated trauma.
- ART success obviates this issue.
Uterine cervix surgery and ASA

- Conflicting data: Does ASA induce production?
- OUR OPINION: contact sperm-female blood may induce ASA production.
- Prevention: - condom
  - postponement of intercourse
Pathogenesis of immunologic infertility

• Widely accepted: impairment sperm migration through cervical mucus.

• Why high titres of ASA: many subtypes of IgA with specific effects? High titres enhances the chance to impair spz fct.

• The interference with sperm-egg interaction, zygote dvpt, implantatio. In animals: YES; in human: NO PROOF.
Assays to detect ASA

- There are many available tests, each have advantages and drawbacks.
- Difficulties in interpretation: Intra and between laboratory variability.
- WHO: effort to reduce between lab variability (book published last year).
- More sensitive and more specific assays required.
Treatment of immunologic infertility

- EMPIRIC
- CONFLICTING OUTCOME
- Possible severe side effects of ART; risk of obviation by the great SUCCESS.
CONCLUSION

- Immunologic infertility: a real clinical feature.
- Pathogenesis: unclear.
- Our hypothesis:
  
  Many Sperm Ag \[\leftrightarrow\] Many IgA subgroups

Best knowledge of pathogenesis = logic treatment, best lab tests, vaccine