



# MALE AND FEMALE IMMUNOLOGIC INFERTILITY

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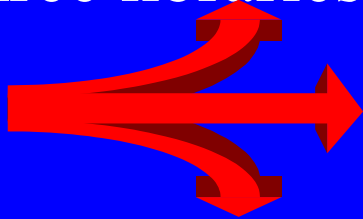
# INTRODUCTION

- 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.



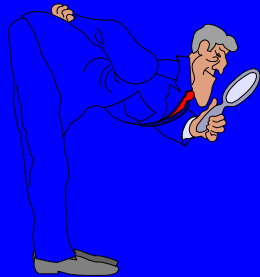
# MATERIAL AND METHODS

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



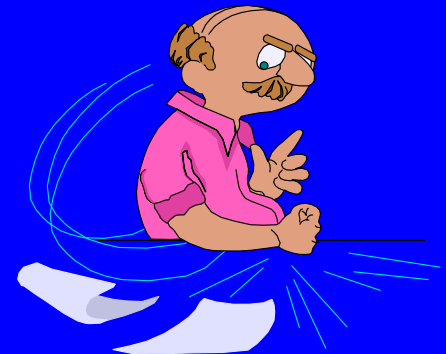
- Computer/Medline

- 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

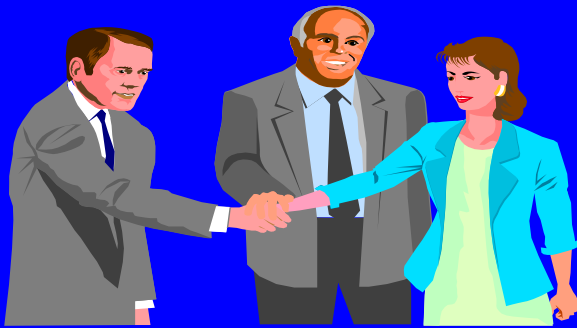
- Ovarian antigens : balance between oophoritogenic T cells - suppressor T cells

- Sperm antigens :- sperm flushing

- minority gains Fallopian

- sperm phagocytosis

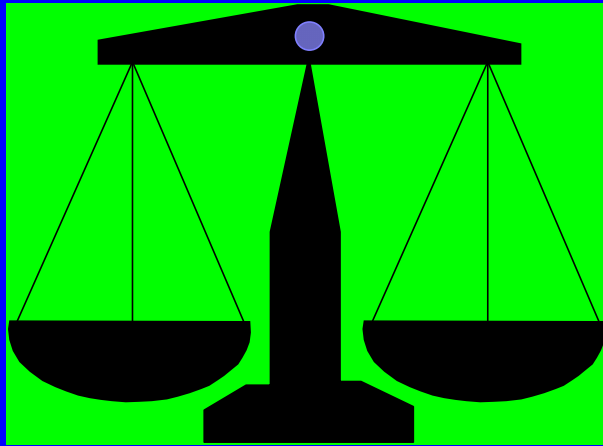
- immunosuppressive factor



integrity of mucosal epithelium

- genetic influences

# Occurrence of immune disease



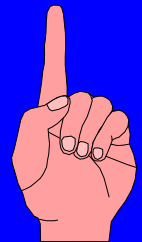
Pathogenic  
self reactive  
T cells

Regulator  
T cells

Imbalance



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



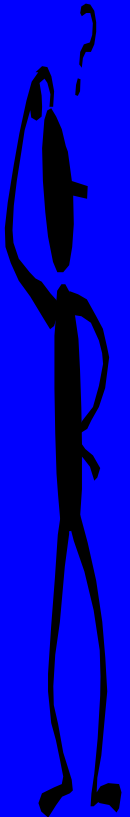
# Production of antisperm antibodies (ASA)

- Male :
  - Testicular trauma
  - Vas occlusion
  - Infection
  - Cancer
  - Cryptorchidism
  - Varicocele
- Female :
  - Disruption of mucosal layer
  - Lymphocytes in semen
  - Ab-bound sperm
  - Abnormal/senescent sp
  - Gastro-intestinal route<sup>Z</sup>
  - 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 dvpt, implantation....



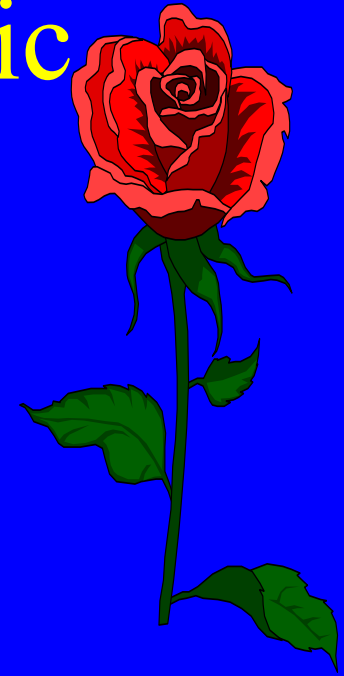


# Laboratory assays

- Agglutination tests : G.A.T, M.A.R, I.B.T, M.A.T.
- Immobilization test : S.I.T.
- Antibody fluorescence :I.F, flow cytometry
- Colorimetry : ELISA
- RIA : Radiolabelled antiglobulin test.



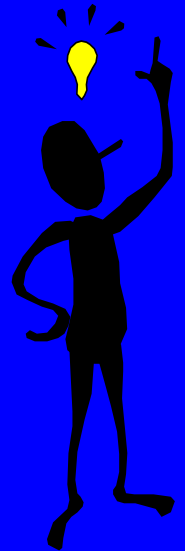
# Treatment of immunologic infertility



- 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...

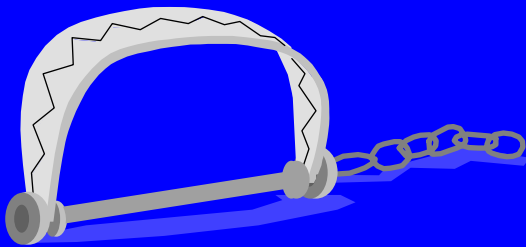
# DISCUSSION : Ovarian hyperstimulation/Oocyte retrieval

- Occurrence of POF after IVF attempts :
  - Hormonal theories: perturbation of the hypothalamo-pituitary-ovarian axis by exogenous gonadotropins, alteration of immune response by estrogens.
  - Repeated trauma.
  - ART success obviates this issue



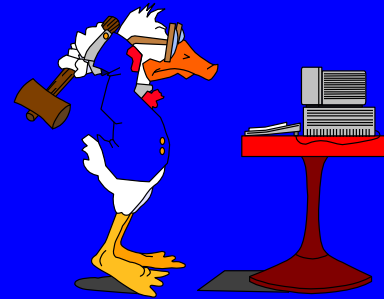
# Uterine cervix surgery and ASA

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



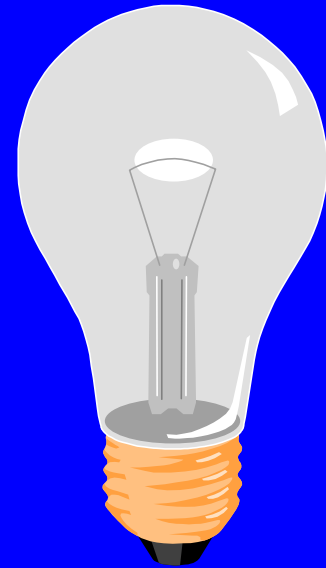
# Pathogenesis of immunologic infertility

- 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.

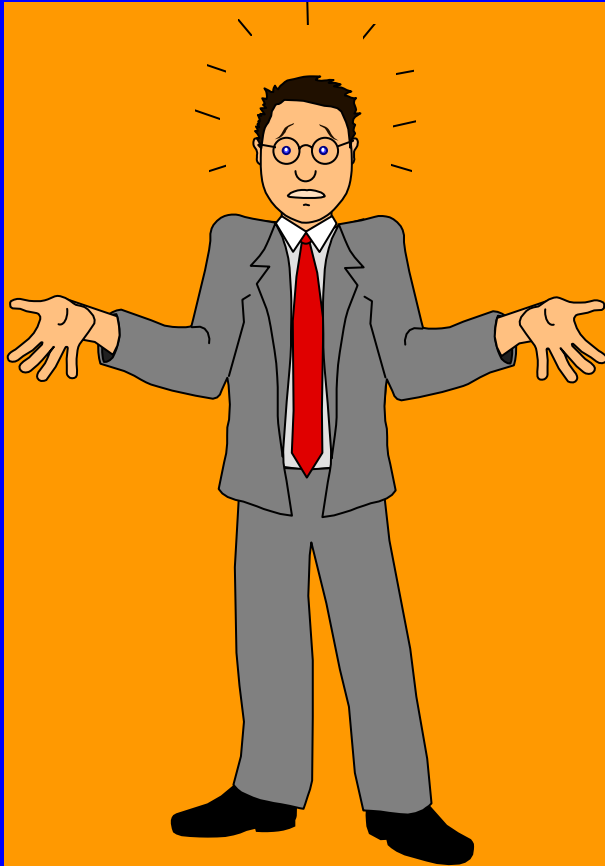


# Assays to detect ASA

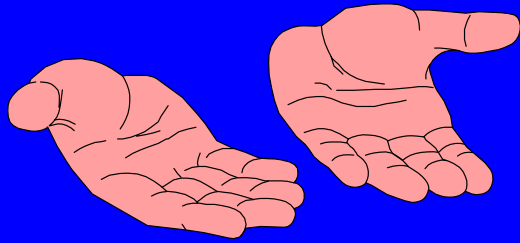
- There are many available tests, each have advantages and drawbacks.
- Difficulties in interpretation : Intra and between laboratory variability.
- WHO: effort to reduce between lab variability (book published last year).
- More sensitive and more specific assays required.



# Treatment of immunologic infertility



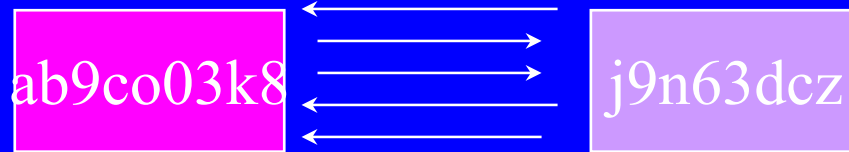
- EMPIRIC
- CONFLICTING OUTCOME
- Possible severe side effects of ART; risk of obviation by the great SUCCESS.



# CONCLUSION



- Immunologic infertility: a real clinical feature.
- Pathogenesis: unclear.
- Our hypothesis :



Many Sperm Ag

Many IgA subgroups

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