How to optimize your IUI pregnancy outcomes without a sperm was additive

(although it can improve your success even more)

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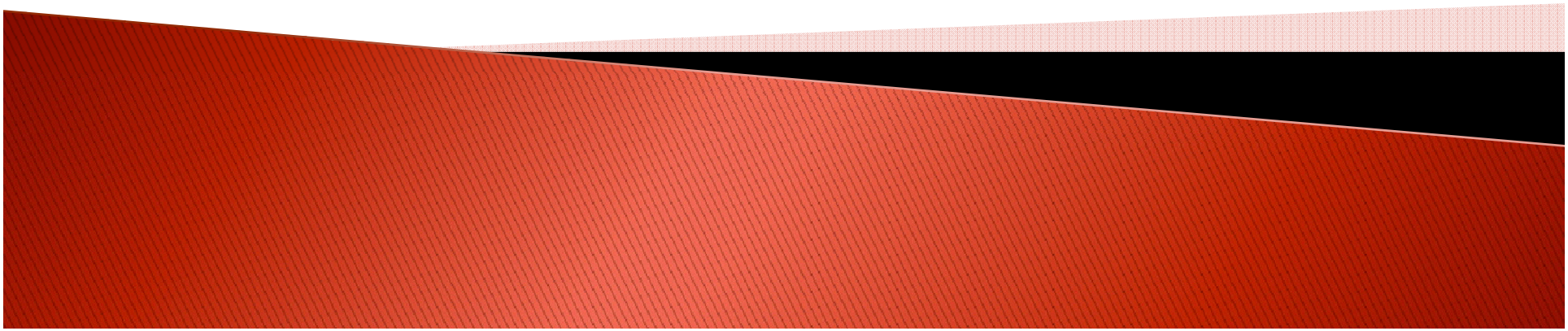
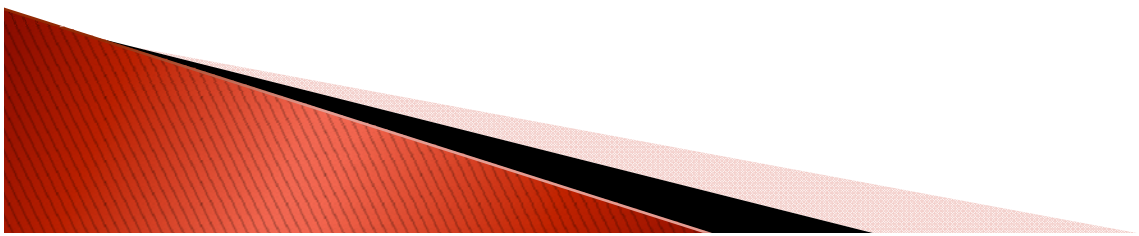


Intrauterine Insemination (IUI)

IUI Video.flv

Reasons for IUI:
The things we know

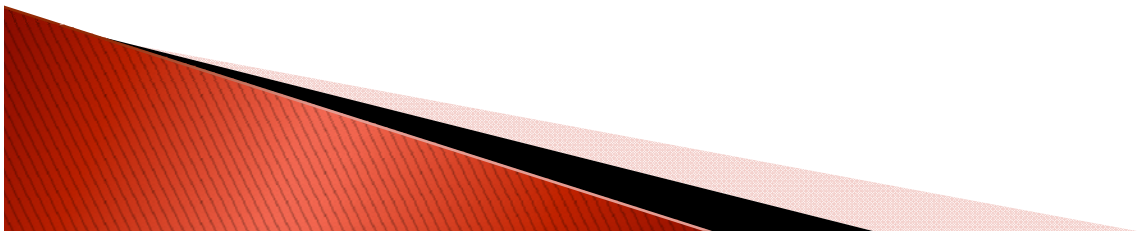
1. Mild male factor infertility (subfertility)
   A. Low sperm count
   B. Poor motility
   C. Clumping/Agglutination
2. Cervical factor
   A. Thick mucus
   B. Antisperm antibodies
3. Semen allergy (rare)
   A. Semen proteins
4. Unexplained infertility
5. Donor sperm



Main Factors Involved

1. Clinical
   A. MD, RN
2. Patient
   A. Female
   B. Male
3. Laboratory
   A. Staff
   B. Sperm wash

This presentation will focus on the laboratory component: i.e. the sperm wash

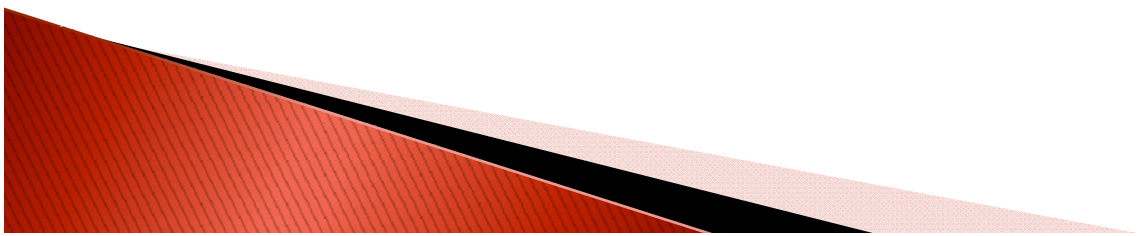


Sperm Wash Techniques

1. Simple spin down
   A. Quick
   B. Cheap
   C. Debris/Junk
2. Swim-Up (migration)
   A. Cheap
   B. Top-end quality
   C. Low yield
   D. Time-consuming
3. Filtration (glass-wool)
   A. Relatively quick
   B. Expense
4. Migration-Sedimentation
   A. Expense
   B. Poor recovery efficiency
   C. Processing time
   D. High motility
5. Density/Gradient Separation
   A. Relatively quick
   B. Cost Effective
   C. Top-end quality
   D. High yield

Our Story in Optimizing IUI

1. 8-15 IUI's per day
   A. ~3,000 to 5,000 per year
   B. 7am-1pm
2. Pregnancy rate <15%
3. Basic lab instructions: "just get sperm"
4. Previous experience(s): spin-down/swim-up
   A. No difference in pregnancy rates
5. Gradients vs. simple density centrifugation



How to Optimize the Lab Component: The Sperm Wash Prep

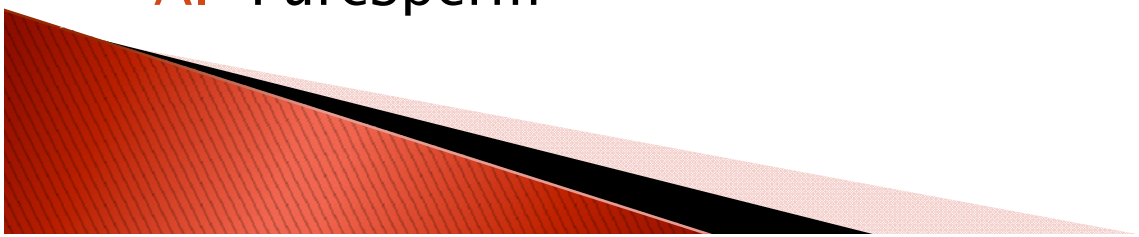
1. Due to time constraints did not look at swim-up
2. Focused on
   A. Spin-Down Centrifugation (~20 mins)
      I. AKA Pellet Wash
         a. Poor pregnancy rates-promptly dismissed
   B. Migration Sedimentation (~120 mins)
      I. Commercial spin-down chamber
         a. Extensive processing time-promptly dismissed
   C. Density Centrifugation (~30 mins)
      I. 90%
   D. Gradient Centrifugation (~30 mins)
      I. 45:90

Sperm Wash Preps

Method	Recovery Efficiency (%)	Motility (%)	Path Velocity	Debris	Round Cells	Hyperactivation
Raw	n/a	41.9 (4.1)	46.50 (2.89)	1.73 (0.18)	0.88 (0.18)	55.08 (3.29)
Spin-Down	47.2 (0.05)	54.7 (3.2)	27.85 (2.02)	0.87 (0.29)	0.83 (0.24)	62.83 (1.78)
90% Density	46.7 (0.08)	65.6 (5.7)	65.02 (3.30)	0.31 (0.18)	0.14 (0.10)	76.38 (0.98)
45:90	37.3 (0.06)	55.6 (4.4)	56.74 (1.40)	0.00 (0.00)	0.00 (0.00)	73.99 (0.96)
Migration Sedimentation	15.4 (0.03)	63.2 (6.6)	63.14 (4.04)	0.00 (0.00)	0.00 (0.00)	78.75 (3.02)

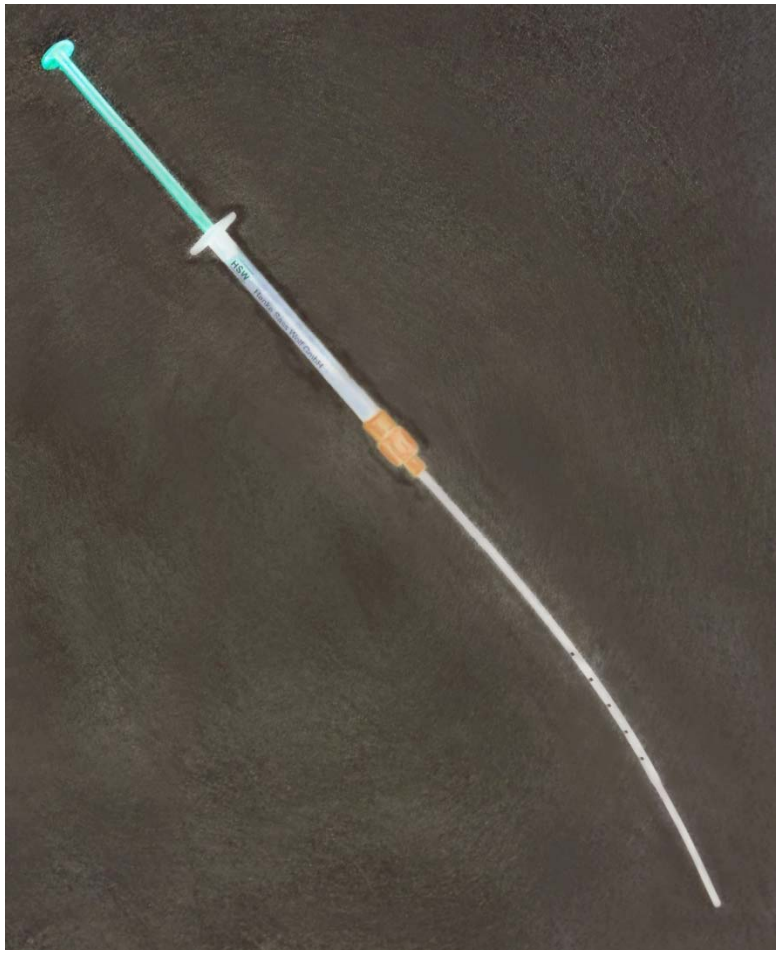
Optimize the Sperm Wash

1. Use all the specimen
2. Multiple tubes for initial density (90%) separation
   A. 2ml semen to 3ml
3. Centrifugation time and x*g*
   A. Soft pellet!
   B. 350g (350-400g); 20 mins (15-20 mins)
4. Combine all sperm pellets
5. Wash in a sperm wash medium
   A. 300g; 10 mins
6. Final resuspension (~0.5mL total final volume)
   A. PureSperm



Sperm Delivery: Lab-to-patient

1. Outside use
   A. Transport
2. In-House
3. Physician-Lab chat
   A. The process
   B. “Dead-air volume”
   C. 1ml syringe
   D. IUI catheter



IUI Catheter

1. Morton IUI catheter
2. Specifications:
   A. Overall length 17.5cm
   B. Luer lock hub with 7fr outer tapering to a 5fr inner catheter
   C. 5cm markings
   D. Tip is closed with duel lumen side ports
3. Fertility Technology Resources
   A. fertilitystuff.com

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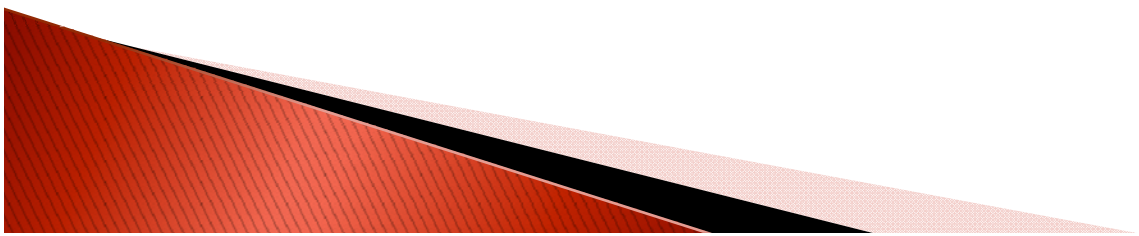
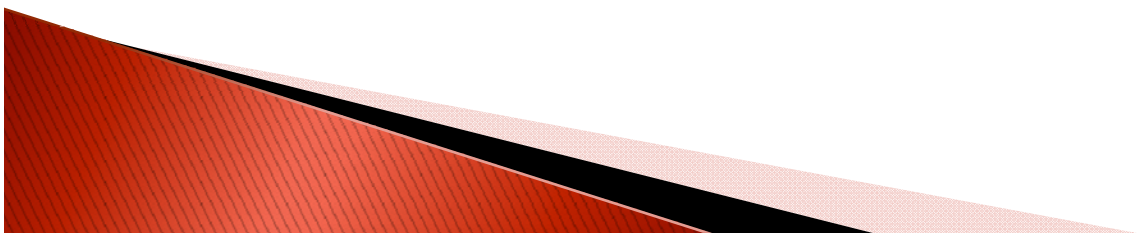
6. Final resuspension (~0.5mL total final volume)
   A. PureSperm
7. Syringe loading
   A. 0.2ml "dead-air" volume

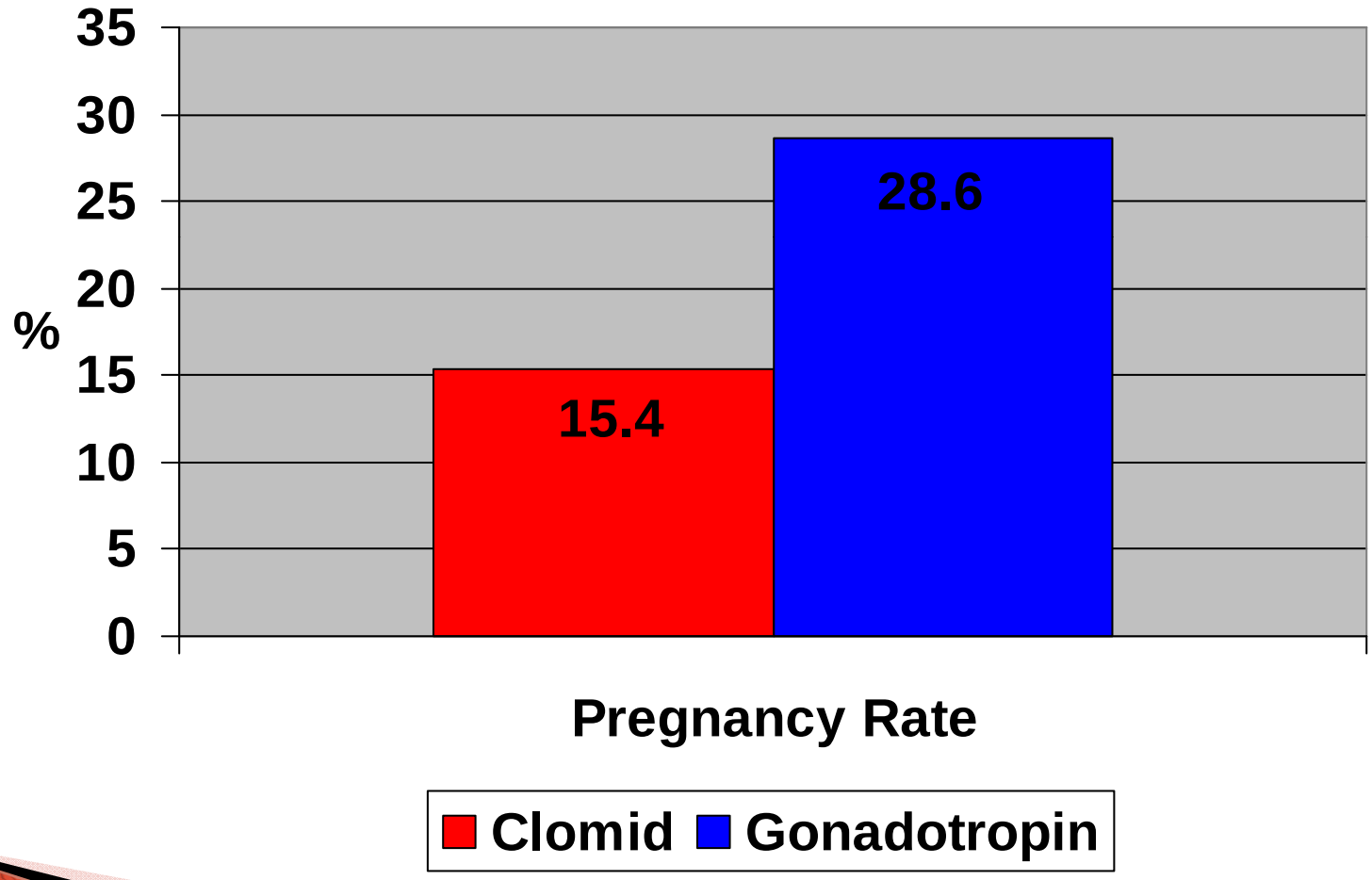


Results, Outcomes, etc…

1. Its all about the pregnancy rate
   A. Previous: <15% overall
   B. Per cycle
2. Detailed data collection
   A. Clomid
   B. Gonadotropin

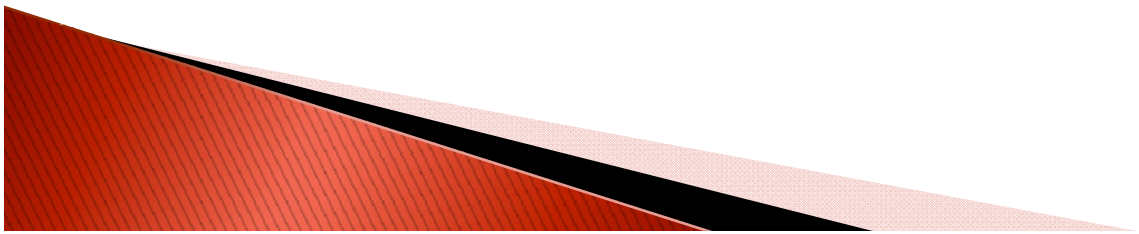


IUI Pregnancy Rates: Per Cycle



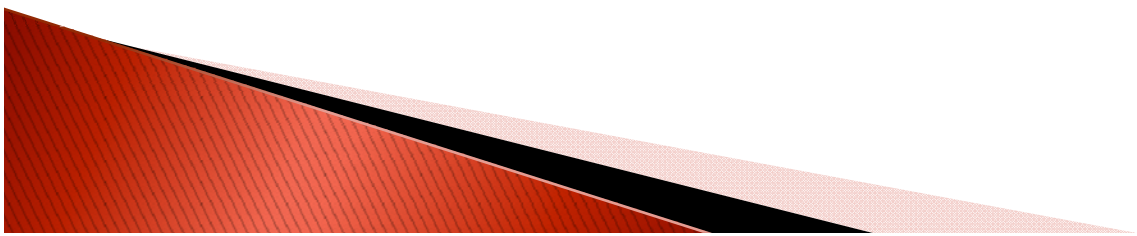
To Optimize IUI Pregnancy Outcomes

1. Optimize the sperm wash procedure
2. Optimize the sperm delivery
3. Communication
4. Outcome tracking



How to optimize your IUI pregnancy outcomes without a **sperm** was **additive**

(although it **can improve your success even more**)



A sperm wash additive can improve your success

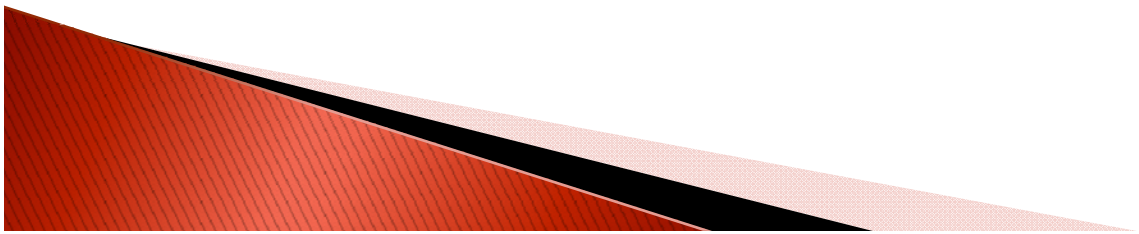
1. Optimize your sperm wash protocol without it
2. What additive to consider?
   A. Caffeine
      I. chemical
      II. phosphodiesterase inhibitor
   B. Pentoxifylline
      I. chemical
      II. phosphodiesterase inhibitor
   C. Platelet-activating factor
      I. Biochemical
      II. phospholipid

Platelet-Activating Factor (PAF)

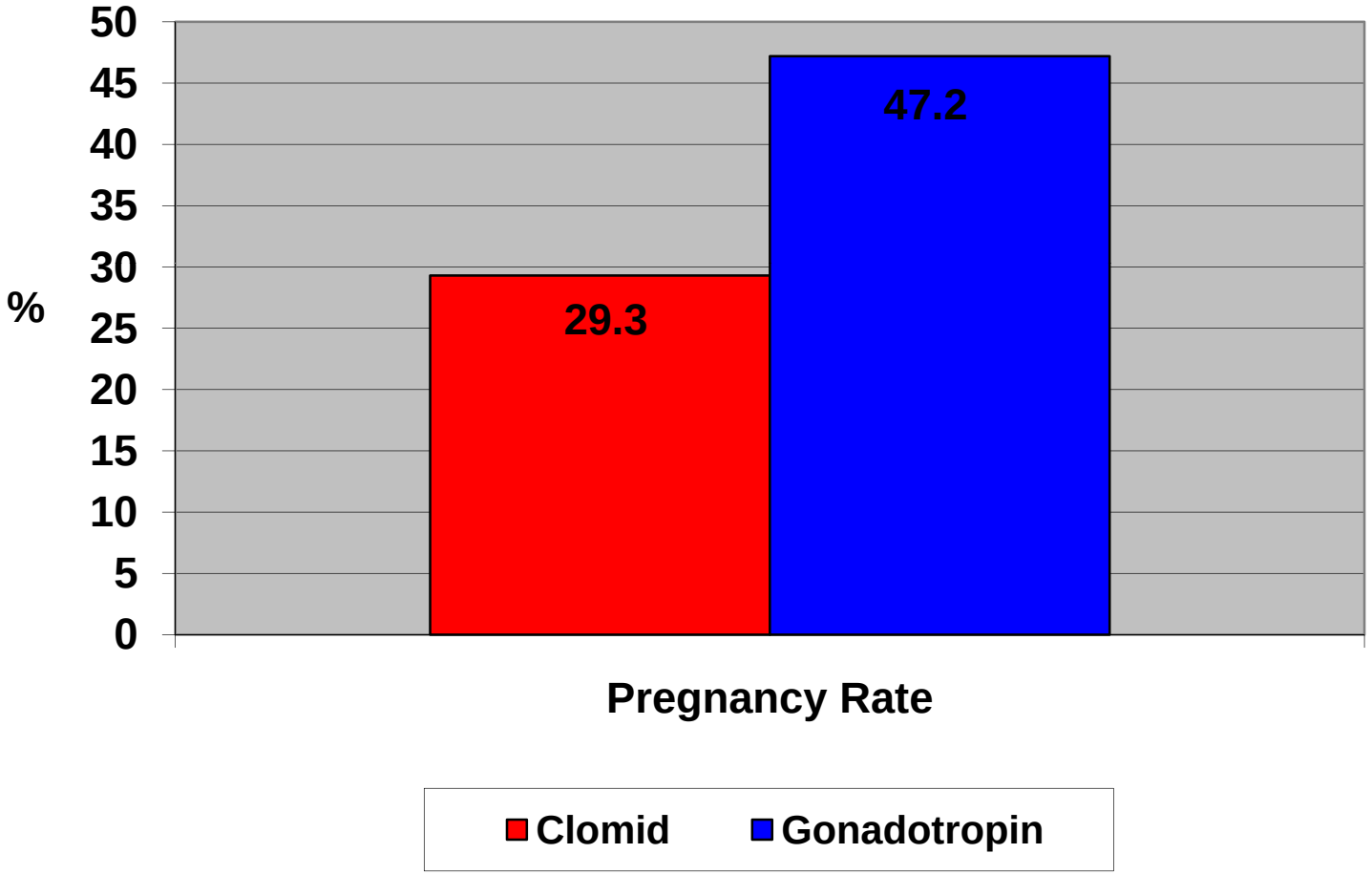
1. PAF is naturally found in sperm
   A. Over 25 years experience
2. Endogenous PAF content correlates with
   A. Sperm motility
   B. Sperm capacitation
   C. In vitro fertilization rates
   D. Pregnancy potential
3. Exogenous PAF will
   A. Enhance sperm motility
   B. Promote sperm capacitation
   C. Promote sperm acrosome reaction
4. PAF is naturally found in preimplantation stage embryos
5. Embryo-derived PAF levels correlate with
   A. Embryo development rates
   B. Pregnancy rates
6. Exogenous PAF will enhance
   A. Embryo development rates
   B. Embryo implantation rates
   C. Pregnancy potential

Optimized Sperm Wash with PAF

1. Use all the specimen
2. Multiple tubes for initial density (90%) separation
   A. 2ml semen to 3ml
3. Centrifugation time and x*g*
   A. Soft pellet!
   B. 350g (350-400g); 20 mins (15-20 mins)
4. Combine all sperm pellets
5. Expose to PAF [10^{-7}M] at 37°C) for 15 mins
6. Centrifuge: 300g; 10 mins
7. Wash in a sperm wash medium
   A. 300g; 10 mins
8. Final resuspension (~0.5mL total final volume)
   A. PureSperm
9. Syringe loading
   A. 0.2ml "dead-air" volume



PAF-IUI Pregnancy Rates: Per Cycle



A Patient's Perspective

Fox 5 News (5.3.06) PAF-IUI - Reproductive Biology Associates.mp4

To Optimize IUI Pregnancy Outcomes

1. Optimize the sperm wash procedure
2. Optimize the sperm delivery
3. Communication
4. Outcome tracking
5. Investigate utilizing a sperm wash additive (e.g. PAF)