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President's Medal for best medical graduate of year1970-75
Award from DMA Dr. B.C Roy's birthday: outstanding contribution to medicine1999
Vikas Ratan Award by Nations economic development & growth society 2002
Chitsa Ratan Award by International Study Circle in 2007
Life time Medical excellence award Obs & Gyne by Hippocrates foundation 2014
Abdul Kalam gold medal 2015 & **Rashtriya Gaurav Gold Medal award** 2017 by Global Economic Progress & Research Association.
Distinguished teacher of excellence award for PG medical education by ANBAI & NBE 2017 and **Inspiring Gynecologists of India** by Economic Times 2017.
Felicitated by highest Merck Serono honor award at times healthcare achievers award 2018
Course director for post doctoral **Fellowship in Reproductive Medicine** by NBE, since 2007, IFS since 2014, ISAR 2014 and by FOGSI for basic & advanced infertility training since 2008.
Member of Editorial board of '**IVF Worldwide',** peer reviewer for '**Journal of Human Reproductive Sciences',** member advisory board for '**Journal of Fertility Science & Research'.**
Field of interest: Infertility, ART, Reproductive endocrinology, Endoscopic surgery for pelvic resurrection.

Preventing and Managing Complications of Controlled Ovarian Hyperstimulation

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Expertise
Infertility, assisted reproductive techniques, reproductive endocrinology, endoscopic surgery for pelvic resurrection.

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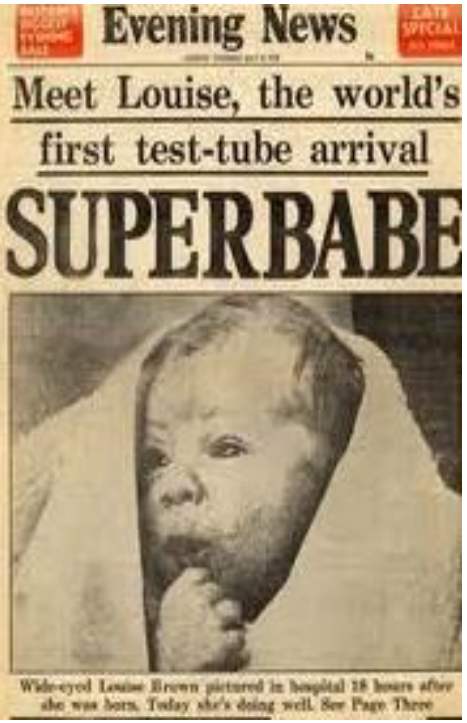
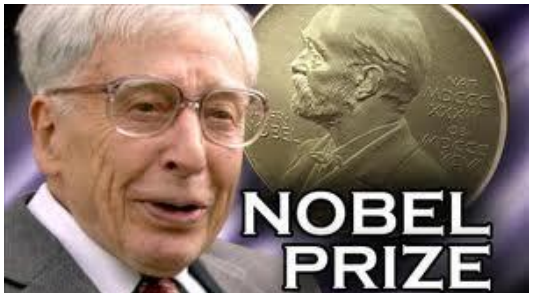
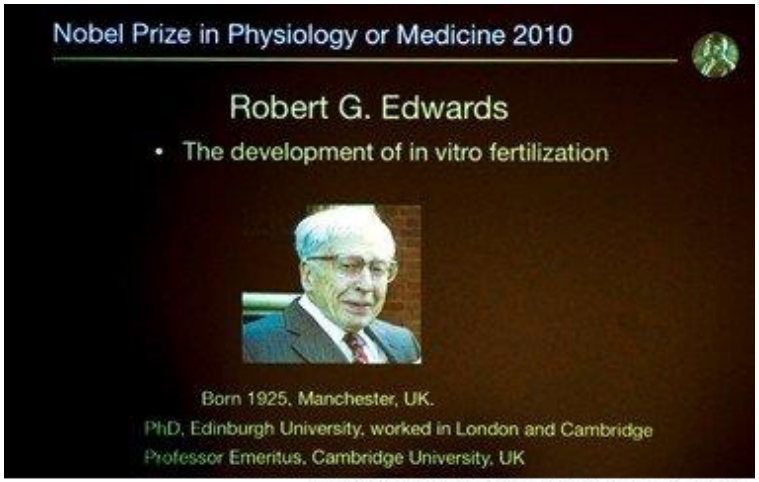
SGRH
IVF SIR GANGARAM HOSPITAL

Single oocyte Single embryo Single baby



Of this year's Nobel Prize winners, the work of British physiologist Robert G. Edwards waited longest to be recognized. His award for medicine comes 32 years after he figured out how to create the beginnings of human life outside the uterus through in vitro fertilization.



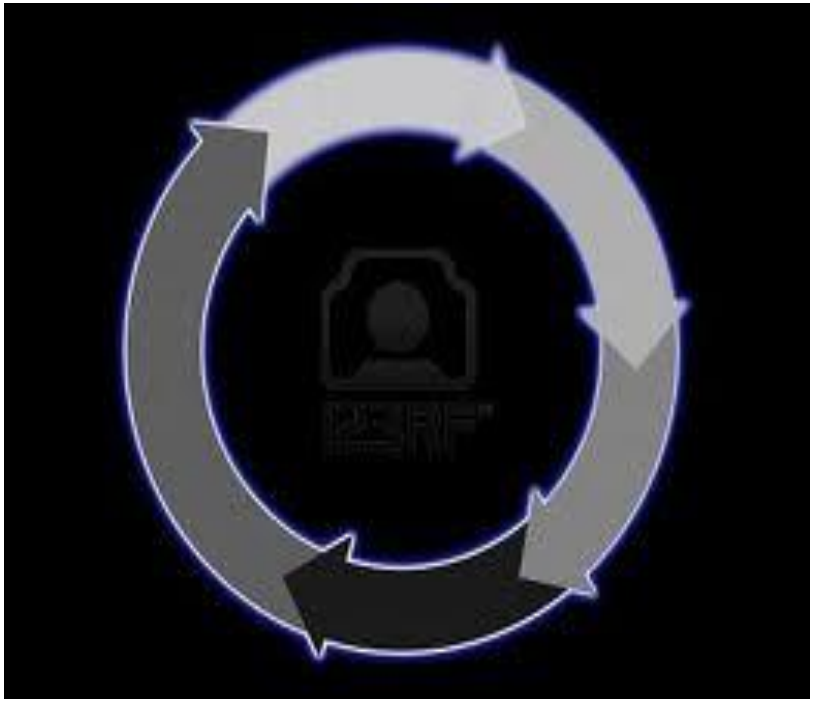


Jonathan Nackstrand, AFP/Getty Images

IVF started to develop fast with the aim of maximizing pregnancy rates per cycle

- Higher number of oocytes and thus more embryos
- Use of unphysiological high doses of gonadotropins
- Time consuming protocols
- Higher costs
- Patient discomfort
- **Higher risk of OHSS**
- Very high risk of multiple gestation

Rapid progression of protocols and technology



Definition of success in IVF is now shifted from pregnancy rate per cycle towards achieving healthy singleton child per started course of treatment ***without complications.***

Further progression of technology aims to **minimize complications** yet maintain optimal pregnancy rates.

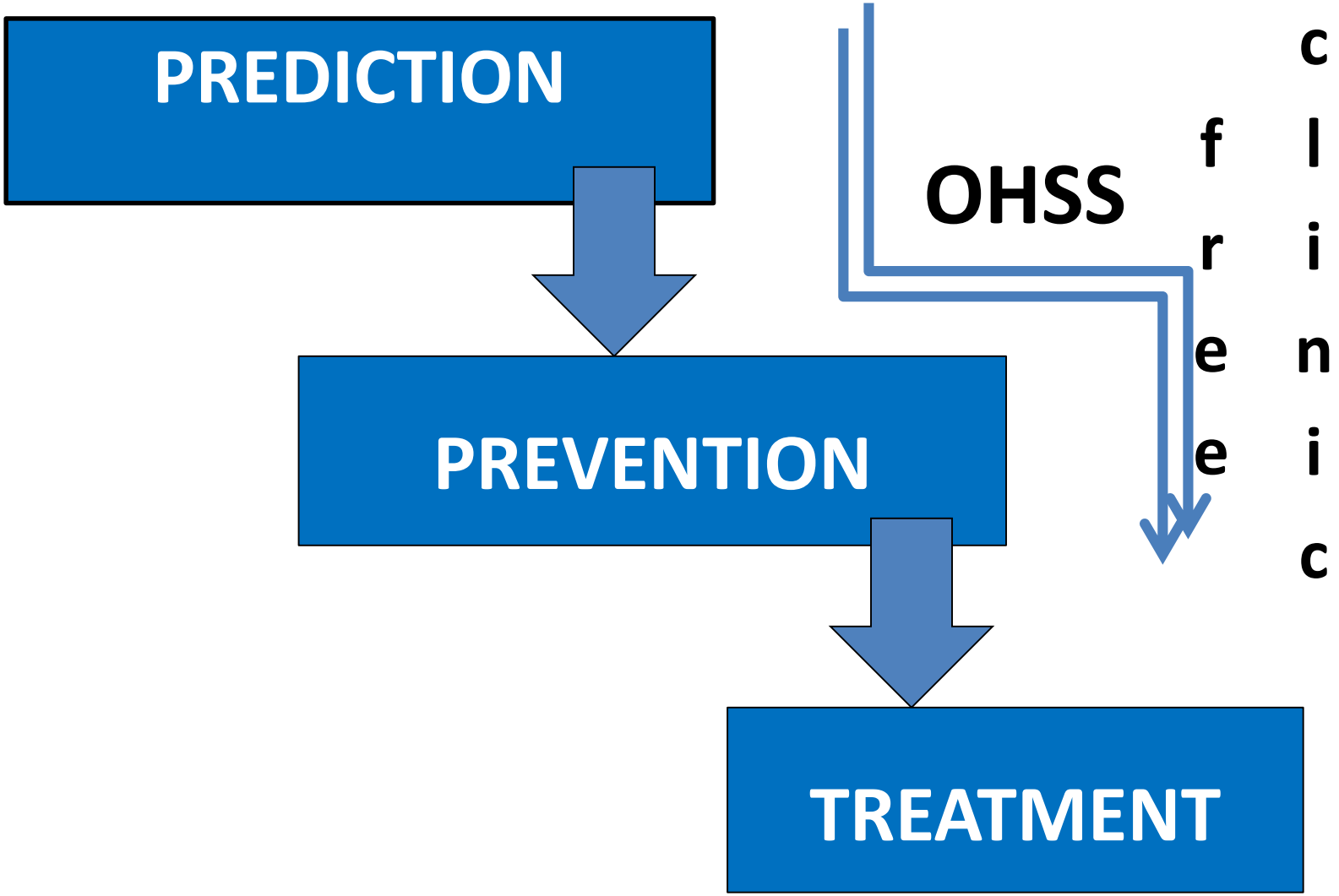
Ovarian hyper-stimulation syndrome

OHSS

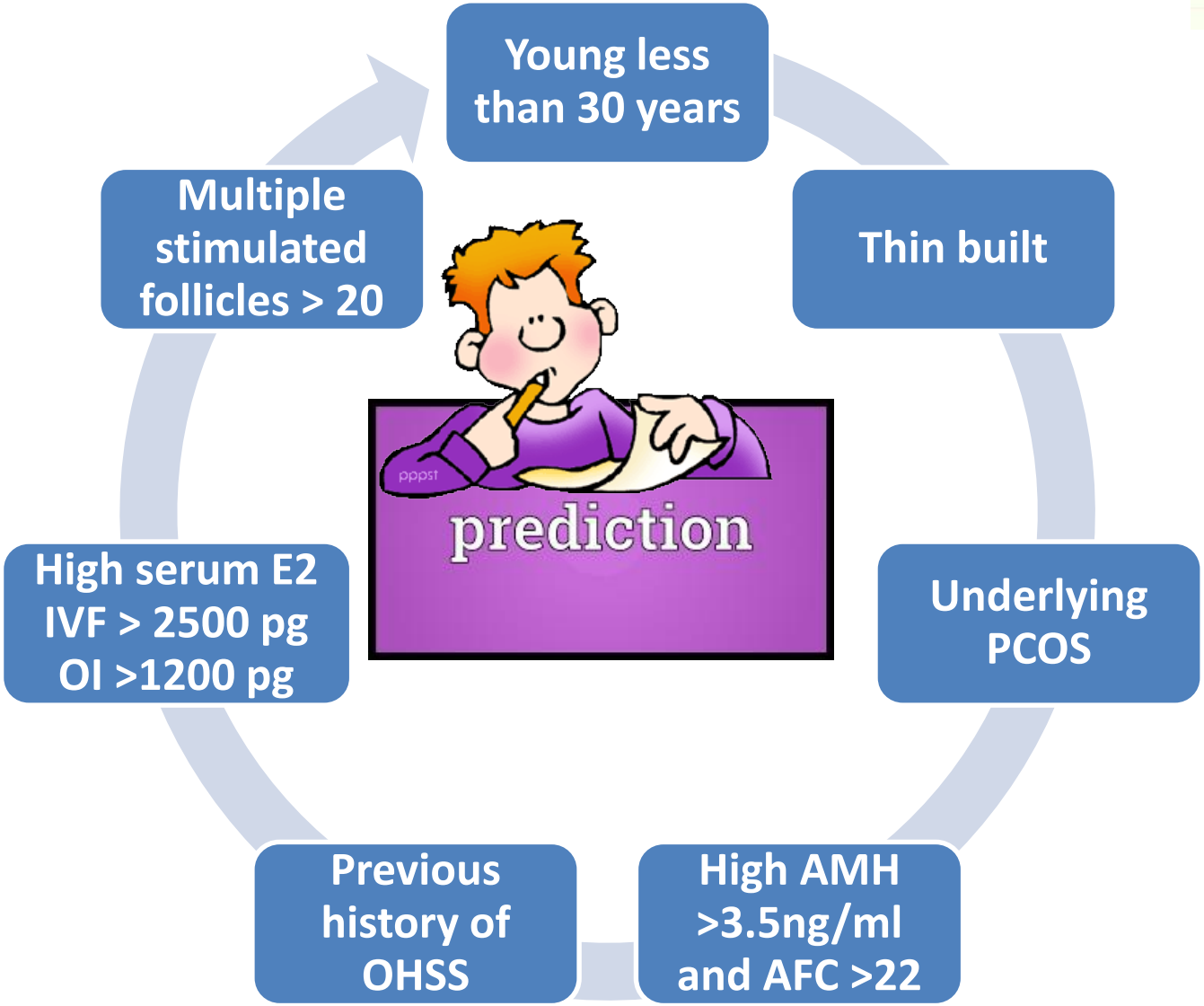
A purely clinician-induced ***iatrogenic life threatening*** condition occurs in

- absolutely *healthy and young* women desiring to have a child

Very risky for patient & clinician


PREDICTION
PREVENTION
TREATMENT
OHSS
free clinic

Can we reliably predict OHSS




Pre stimulation
Metformin before starting OI
Luteal phase
Embryo freezing
Dopamine agonist
albumin/HESS
Antagonist
I/V Calcium
Prevention
Follicular phase
Antag protocol
Lower dose gonadotropin
Coasting/Cycle cancellation
Conversion to IVF
Ovulation Trigger
GnRH trigger in antag cycle
Low dose hCG (2000)
No trigger
SGRH
IVF SIR GANGARAM HOSPITAL

WHO IS THE CULPRIT

Trigger for final oocyte maturation

OHSS

The Truth is that

OHSS MUST

BE PREVENTED RATHER than treated

OHSS

Complication

Morbidity

- Pulmonary edema, pleurisy, complicated pneumonia, hydrothorax, ARD's
- Thrombo-embolism: cerebral stroke, ICH, CVA, paralysis or amputation of forearm
- Irreversible hepato-renal failure

OHSS

MATERNAL MORTALITY RATES Due to OHSS

Netherland & UK – 2007

MORTALITY : 3 / 1,00,000 CYCLES

1-5 million IVF cycles / year

500 death (last 10 years)

Grossly Underreported

1 Aboulghar. Fertil Steril. 2012;97:523-6;

2 Confidential Enquiry into Maternal and Child Health, 2007;

OHSS

Welcome Protocol
to manage 'Error' or 'Terror' of OHSS

ction, Vol.26, No.10 pp. 2593–2597, 2011
olication on August 9, 2011 doi:10.1093/humrep/der251

on OPINION

An OHSS-Free Clinic by se of IVF treatment

Paul Devroey*, Nikolaos P. Polyzos, and Christo
Centre for Reproductive Medicine, UZ Brussel, Laarbeeklaan 101, 1090 Brussels, Belgium

An ***OHSS-Free Clinic***

by segmentation of IVF Treatment

OHSS-Free Clinic

by segmentation of IVF Treatment

IVF SIR GANGARAM HOSPITAL

STEP 1

Antagonist protocol

Patients friendly

- Fewer injection
- Shorter stimulation
- OHSS much lower

-Same PR

STEP 2

GnRH agonist trigger

-LPD thus lower PR

-Aggressive luteal support if ET

-Cryo-preserve and subsequent transfer

STEP 3

Cryopreserve embryos

-PR higher

-OHSS ZERO

-Ethical issues of CP of embryos

OHSS

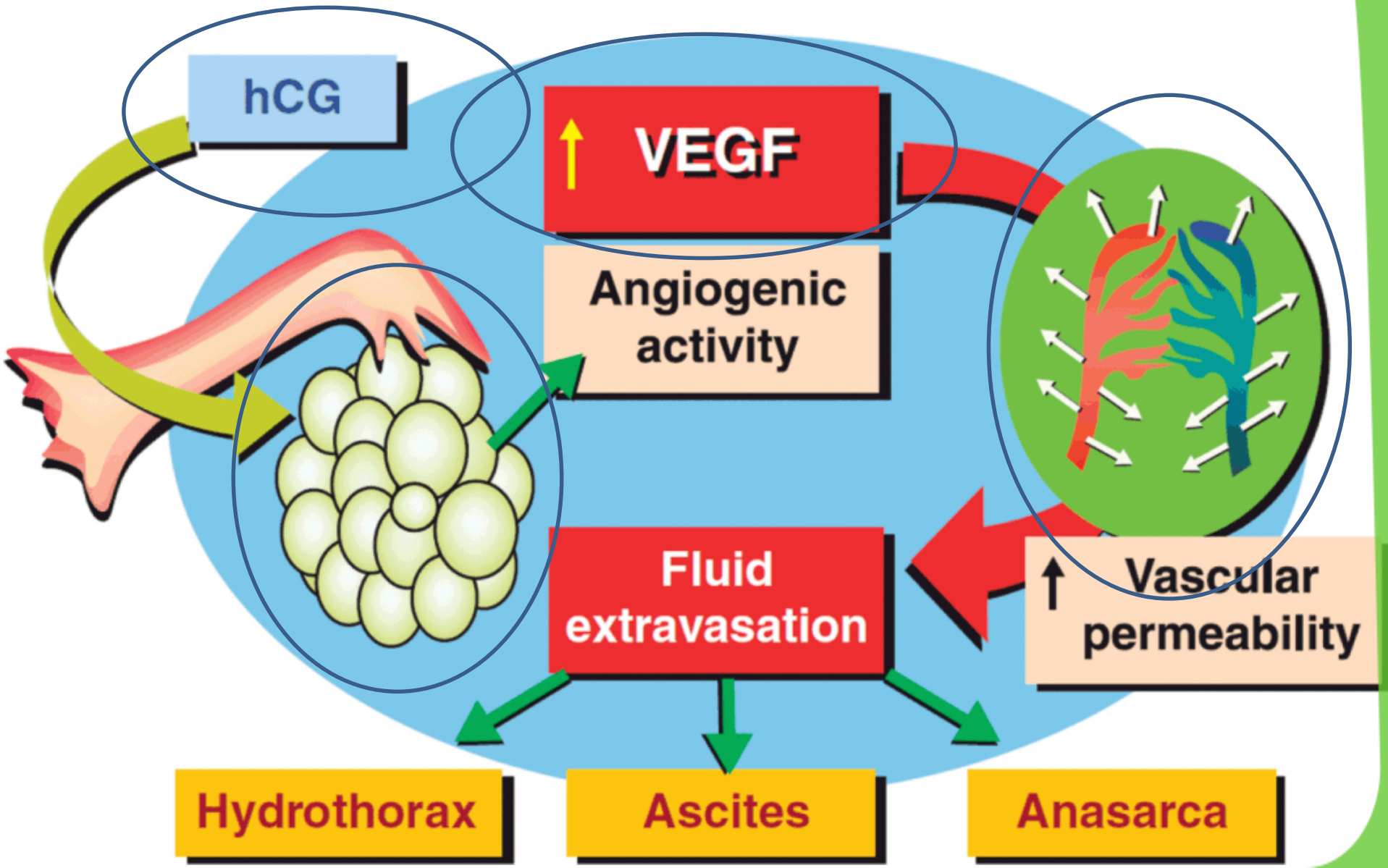
Management

Important strategy is to recognize initiation of OHSS

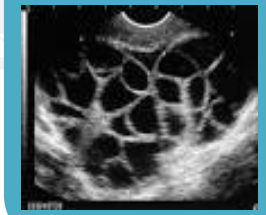
Prevent progression to severe and critical OHSS

Prevention of full blown OHSS and its consequences
even at the cost of failure of ART cycle

Etiopathogenesis



Staging of OHSS for management

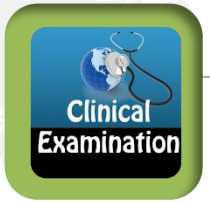
MILD	MODERATE	SEVERE	CRITICAL
			
Abdominal distension GI symptoms ovary <8cm	**Mod abdominal pain, ascites on USG Ovary 8-12cm**	clinical ascites hydrothorax± oliguria, PCV>45%, TLC > 25000 Ovary> 12 cm	**Tense ascites hydrothorax PCV >55% WBC>25000/ml, oligo/anuria, embolism ARDS.**

RCOG 2016 greentop guidelines

How to stage OHSS?

Clinical examination

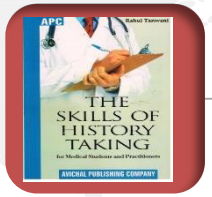
Vitals, ascites, hydrothorax, sub-cut edema



Laboratory test

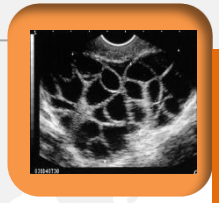
Hbg, PCV, TLC
LFT & KFT
Electrolytes

History



COS, hCG, Pregnancy Breath-lessness, abd discomfort pain, GI symptoms

Imaging



Ovarian vol
Ascitis
Hydrothorax
Echo cardiogaphy

OPD management

- ***Analgesia:*** paracetamol, codiene derivatives, **NSAID's NO! –** may compromise renal function

- ***Avoid strenuous exercise and sexual contact***

Fear of torsion or injury to enlarged ovaries.

- ***Light physical activity*** but strict bed rest

avoided to prevent thrombo-embolic phenomenon.

- ***Drink to thirst.*** Minimize "free water", intake but encourage "sports drink".

When to admit

- Severe and critical OHSS
- Moderate OHSS with poor pain control
- Nausea vomiting not allowing oral treatment
- Difficulty in ensuring ongoing monitoring
- Moderate OHSS with worsening staging (increasing distension, shortness of breath)
- Impression of reduced urine output.

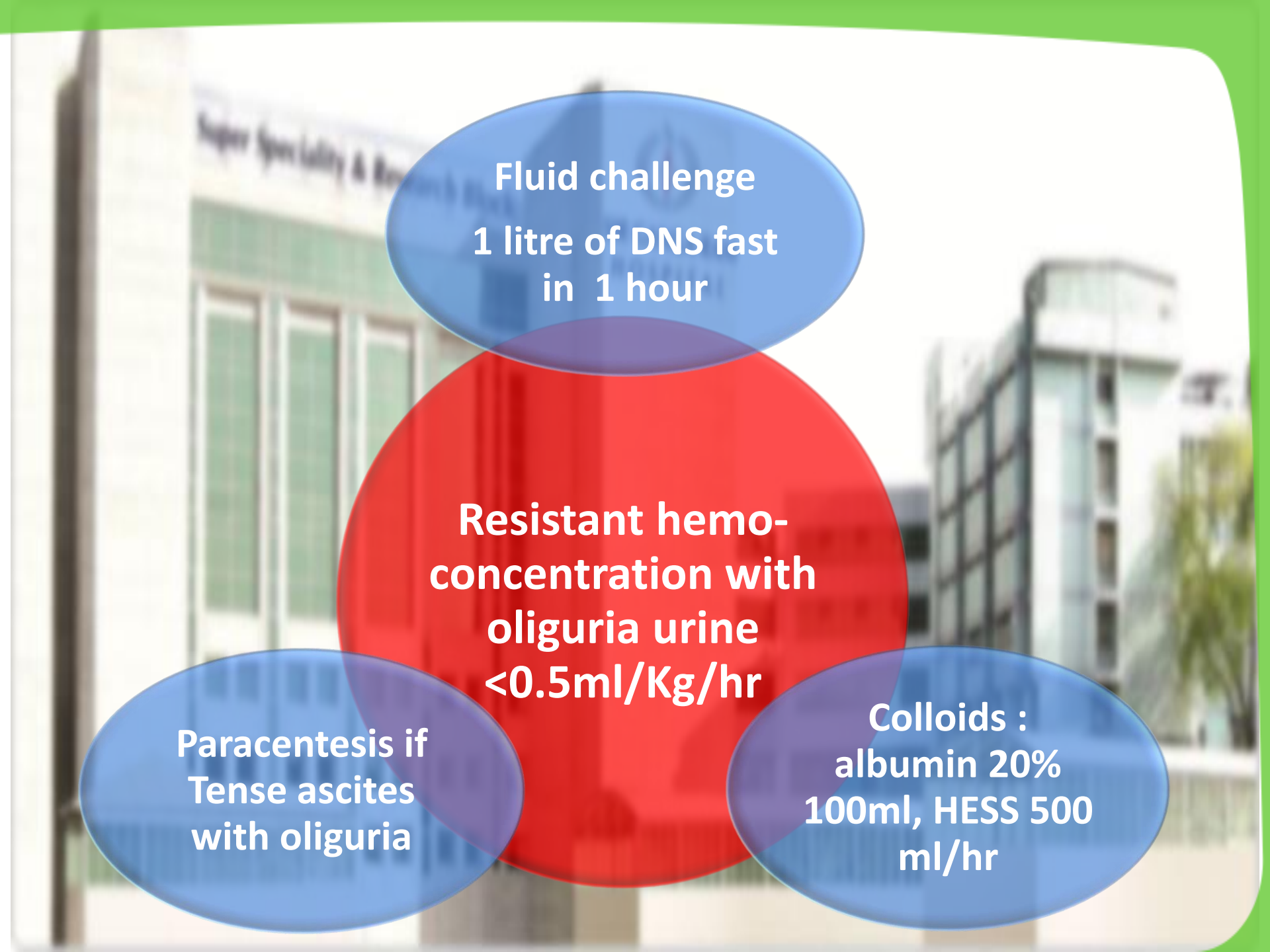
In patient care

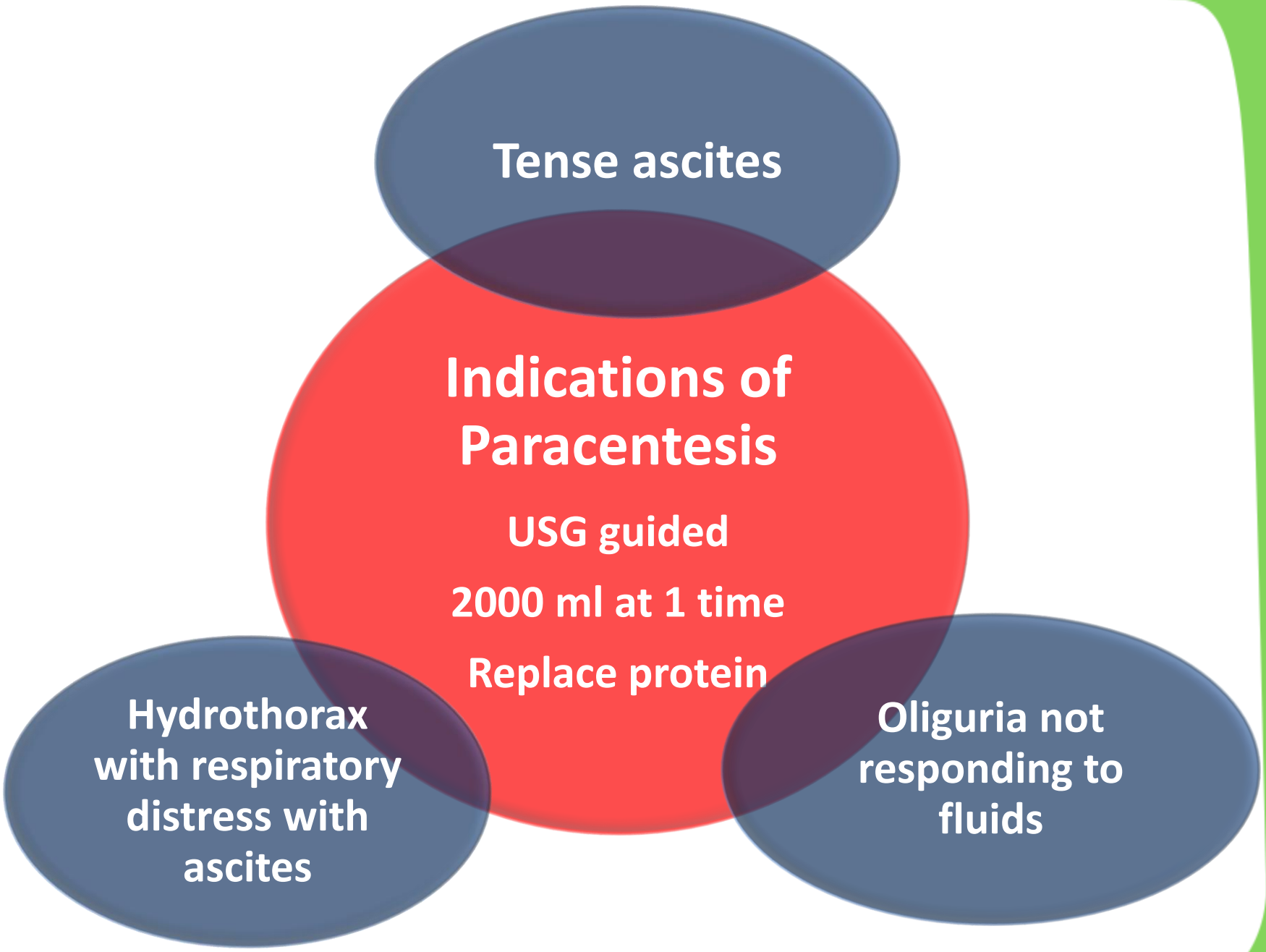
Multi disciplinary care requires 3 important areas to be managed

- ❑ Hemo-concentration and kidney failure
- ❑ Ascitis or hydrothorax or pericardial effusion
- ❑ Thrombo-embolism.

Intensive care in patients with critical OHSS with ARDS and assess daily or more if critical OHSS

Level 3 evidence


Fluid challenge
1 litre of DNS fast in 1 hour
Resistant hemo-concentration with oliguria urine <0.5ml/Kg/hr
Paracentesis if Tense ascites with oliguria
Colloids : albumin 20% 100ml, HESS 500 ml/hr


Tense ascites
Indications of Paracentesis
USG guided
2000 ml at 1 time
Replace protein
Hydrothorax with respiratory distress with ascites
Oliguria not responding to fluids

Thrombo-prophylaxis

Incidence 0.7-10%
Upper body sites
Arterial

Unusual neurological symptoms after COS
evidence level 3

Thrombo-prophylaxis with LMWH to all admitted with OHSS. Continue till it subsides in early OHSS with no pregnancy or continue through end of first trimester if pregnant.
evidence level 3

Altered coagulation
Reduced venous return

warranted, unless H/O thrombosis.
evidence level 2b

OHSS

Most scary situation for all infertility clinicians

Grave complications for a young healthy women need to be prevented at all cost

The couple has come to make a family, we can't break it even if we can't help make it!

Complications can be very morbid and be as severe as death

Ovarian stimulation the right way is not only science but also an art

Prevention is better than cure

Thank you