PSG Medi Pulse

News ■ Medical ■ Surgical ■ General

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Message

குறள் :

அற்றால் அறவறிந்து உண்க அஃதுடம்பு
பெற்றான் நெடிதுய்க்கும் ஆறு.

மு. வரதராசன் விளக்கம் :

உண்ட உணவு செரித்ததையும், உண்ணும் உணவின் அளவையும் அறிந்து உண்பது நீண்ட நாள் வாழ்வதற்கு வழியாகும்.

Medical

A three Days Old baby with complex heart disease gets new lease of life! at PSG Hospitals

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8 out of every 1000 newborns in this world can have some form of congenital heart defects. 25% of them can be critical and life threatening in the newborn period itself. These patients have to be diagnosed and treated as soon as possible. Here we present the story of a three days old child born in Palakkad, brought to our hospital in a very sick state with breathing difficulty and low oxygen levels. We diagnosed the child to be suffering from a very rare and serious heart condition in which there was a discontinuity of blood supply between the upper and lower body. As a result, the upper body was receiving pure blood and the lower body was receiving impure blood. In addition, there was a large hole between the two major blood vessels exiting the heart. This led to significant hypertension in the lungs. This is a life-threatening condition which can be fatal if not treated at the earliest.

From the time the diagnosis was made, it was a race against time as the child was very sick when she presented to our hospital. Operating on a three days old baby poses significant technical challenges. New born heart is just the size of a lemon and the margin of error in such a complex procedure is practically nil. We had to reconnect the lower body blood vessel to the upper body blood vessel and close the big hole between the two main blood vessels of the heart. The traditional way of conducting this operation involves draining the baby's blood, stopping the total circulation temporarily and performing the procedure. This comes with risk of damage to the brain, kidney and lungs. We had to improvise a more technically demanding strategy to ensure constant blood supply to the brain during the entire operation. The procedure took almost 6 tedious hours. But the way her heart swiftly sprung back to life pumping oxygen rich blood uninterruptedly to the whole body was an instant full battery recharge for all our minds and hearts. The child recovered uneventfully and we could discharge her just 8 days after surgery. Her heart is perfectly normal now. She can expect a normal life and pursue any profession that shedreams of.

Inside the mother's womb, the normal heart forms by many closely spaced parts that join together in a peculiar order like solving a jigsaw puzzle. Understandably,there are many different permutations and combinations in which this can go wrong leading to a wide spectrum of heart defects ranging from very mild to complex and life-threatening problems. Critical heart conditions, like in our patient, have to be diagnosed immediately after birth and treated at the earliest as any delay in diagnosis or treatment could be catastrophic for the newborn.Such babies if treated on time can expect a good recovery and normal life. In the current era, almost all varieties of congenital heart diseases can be treated with good long-term outcomes. It is important for the parents and treating physicians to recognize any abnormal symptoms and refer to a higher cardiac center for immediate treatment. All complex congenital heart surgeries are being done in PSG hospitals, Coimbatore.

Medical

Male Infertility – Centre for Reproductive Medicine and Fertility Clinic

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The first step to identify male factor infertility is the Semen Analysis. Routine Semen Analysis reveals essential information on sperm production, concentration, motility and viability, patency of the male genital tract, accessory organ's secretions, ejaculation and emission. Well-defined reference ranges for Semen parameters are provided in the 5th edition of the World Health Organization (WHO) manual. In addition, the manual also provides an insight into the assessment methodology and the quality control measures.

Semen Sample is usually collected by ejaculation. Ejaculation is the sequential emptying of epididymis and vas deferens contents and secretions from the prostate and seminal vesicles. The evaluation of the specimen holds two parts to it – Macroscopic and Microscopic examinations.

Macroscopic Examination

1. Volume

a. Normal range is between 1.5 – 6.0ml

b. Majority of semen volume is from the seminal vesicles and prostate gland

- Low semen volume suggests (a) incomplete semen collection; (b) secretory dysfunction of accessory sex glands; (c) stress during semen collection
- High semen volume could be due to the active inflammation of the accessory organs

2. Consistency/Viscosity

a. The complete sample usually liquefies within 15 minutes at room temperature

b. Rarely, liquefaction does take 60 minutes or so

- High Viscosity could be related to chronic inflammation of the prostate
- High viscosity may interfere with the determination of sperm motility, concentration, detection of antibody coated sperm and assessment of biochemical markers

3. pH

a. Normal range is between 6.4 – 8.0

b. This is determined by the acidic secretions of the prostate and alkaline secretions of the seminal vesicles

Low pH (<7.0) and low volume (<1.0ml) and no spermatozoa often indicates obstructive azoospermia

4. Odour

a. Strong and pungent smell may indicate bacterial infection

5. Appearance

a. Normal appearance of the sample is opalescent-grey

- Yellowish sample may indicate infection or could be due to certain medications
- Reddish tinge in the sample may indicate drops of blood in the sample

Microscopic Examination

The WHO manual provides the reference ranges for the microscopic sperm parameters – these include sperm count, total sperm motility, progressive sperm motility, viability, % of normal forms, leukocyte count. The table below is the comparison reference ranges of the semen characteristics given in the WHO manual (1st to 5th editions)

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Semen Characteristics	WHO 1980	WHO 1987	WHO 1992	WHO 1999	WHO 2010
Volume (ml)	ND	≥2	≥2	≥2	1.5
Sperm Count ($10^6 ml^{-1}$)	20-200	≥20	≥20	≥20	15
Total Sperm Count (10^6)	ND	≥40	≥40	≥40	39
Total Motility (% motile)	≥60	≥50	≥50	≥50	40
Progressive Motility (%)	≥2	≥25	≥20 (Grade a)	≥25%(Grade a)	32(Grade a+b)
Vitality (% alive)	ND	≥50	≥75	≥75	58
Morphology (% normal forms)	80.5	50	30	14	4
Leukocyte count ($10^6 ml^{-1}$)	<4.7	<1.0	<1.0	<1.0	<1.0

Lower reference limit obtained from fifth centile value. Based on fertility criteria; Grade a, rapid progressive motility (25%); Grade b, slow/sluggish progressive motility (5-25 ms^{-1}); normal, 50% motility (Grade a+b) with 60 min of ejaculation; Forward progression (scale 0-3); Arbitrary value; Value not defined, but strict criteria suggested; Strict (Tygerberg) criterion. WHO : World Health Organization; ND: not defined.

Interpretation Guidelines:

1. **Sperm concentration**
   a. Sperm count refers to the number of spermatozoa per unit volume of semen
   b. Total sperm count refers to the total number of spermatozoa in the entire ejaculate
   c. Incomplete sample collection and less abstinence duration, external factors like fever, certain medications, occupational exposure could cause a change in the total sperm count
2. Sperm motility
   a. This is the evaluation of the % of the moving and non moving sperm in several microscopic fields
   b. The total motile sperm count number in the entire ejaculate is of biological importance
   c. Poor progressive motility with an overall reduction in motility could be due to infection/inflammation in the prostate and seminal vesicles
   d. Complete absence of sperm motility could be seen in men with Kartagener's syndrome or immotile cilia syndrome
3. Sperm Vitality
   a. It is of clinical importance to know if the immotile sperm are dead or alive
   b. Another concerning factor is when <35% of the spermatozoa are motile
   c. Presence of a large proportion of vital, but immotile cells may be indicative of structural defects in the flagellum
   d. Presence of a high percentage of non-viable and immotile cells may indicate epididymal pathology
4. **Sperm Morphology**
   a. Staining methods differentiates head defects, neck/midpiece defects, tail defects and cytoplasmicresidues
   b. Each morphologically abnormal spermatozoa will have atleast one of these abnormalities

c. High abnormal morphology has been associated with reduced fertilization rates even among samples with normal sperm concentration and motility

5. Sperm Aggregation

a. This refers to the adherence of immotile spermatozoa to each other

b. It could also be the adherence of motile sperm to mucus strands, non-sperm cells or debris

6. Sperm Agglutination

a. Refers to motile sperm sticking to each other

b. Adherence could be in the head-head, tail-tail fashion or in a mixed way

c. Based on the degree of agglutination grades 1 to 4 are recorded

i. Grade 1 – Isolated - <10 sperm/agglutinate, many free sperm

ii. Grade 2 – Moderate – 10 to 50 sperm /agglutinate, free sperm observed

iii. Grade 3 – Large – Agglutinates with >50 sperm, still free sperm observed

iv. Grade 4 – Gross – All sperm agglutinated and agglutinates interconnected

7. Leuckocyte

a. Presence of non-sperm cells in a sperm sample needs to be assessed

b. If the round cells exceed 1.0ml, their nature needs to be assessed using the leukocyte markers

c. High number of round cells may be a representative of the inflammatory or spermatogenic condition

Performance of the Semen analysis as per the WHO norms is complex, time-consuming, labor intensive and tedious and requires a certain level of technical expertise. Semen analysis can distinguish between the fertile, sub fertile and infertile men. The diagnosis also contributes to the selection of the most appropriate treatment choice and predicts the outcome to a certain extent.

Medical

DEPARTMENT OF OBESITY & METABOLIC SURGERY

Dr. S. Balamurugan
Department of Obesity and Metabolic Surgery

Department of Obesity & Metabolic Surgery of PSG Super Speciality Hospitals has celebrated their first year anniversary and support group meeting together on Dec 5, 2020.

On December 5th 2020 Department of Bariatric & Metabolic Surgery, PSG Super Speciality Hospitals celebrated their first anniversary with their post surgery patients Support Group Meeting. Dr. J.S.Bhuvanewaran, Medical Director PSG Super speciality Hospitals headed this occasion. Special guest Dr. S. Prem Kumar, Head, Department of Surgery, PSG Hospitals & Institute of Medical Sciences participated. Dr.S.Balu, Medical Superintendent, PSG Super Speciality Hospitals was the guest of honours. On December 1, 2019, PSG Super Speciality Hospitals officially began the Department of Bariatric & Metabolic Surgery at the campus headed by Dr.S.Balamurugan.

During last one year 23 surgeries were done and post surgery patients were excited to share their experience. 18 years male with 160kg was the highest weight and after an year he is 100kg now. He needs 6 more months to come to his ideal weight.

Obesity is a chronic, non-communicable progressive disease and this excess weight may increase the risk for many health problems including, Type 2 diabetes, Hyper tension & Cardiovascular diseases, Sleep apnea / Respiratory problems, Osteoarthritis, Infertility, Certain types of Cancer, GERD/Heart burn, Fatty liver/ NASH, Kidney Disease, Psychological issues, Pregnancy problems, such as high blood glucose (sugar) during pregnancy, high blood pressure, and increased risk of caesarean delivery (C-section).

Highlight of this program is out of 23 surgeries 19 patients were diagnosed with sleep apnea are now are completely free from apnea. In females, menstrual irregularities became normal and infertility is gone now. 6 patients are now out of type 2 diabetes and got cured. One year post bariatric patients shared their enthusiastically and without any doubt their quality of life drastically improved and they appear happy and healthy.

Bariatric Surgery is purely a medical procedure, not cosmetic. Diet, exercise, life style modifications are the first line treatment of obesity. People without diabetes who are more than 35 kg (BMI ? 35) and people with diabetes who are more than 30 BMI are eligible to undergo bariatric / metabolic surgery.

Bariatric Surgeon Dr.Balamurugan stated that, Obesity is widespread and obesity rates are steadily rising due to COVID-19 lockdown during last 9 months due to sedentary lifestyle. The 3 major and commonest health issues are psychological stress, uncontrolled diabetes and weight gain. He said, out patients are increased at this situation for overweight in normal individuals and obesity in overweight people according to their department data. He added his team practices the simple yet, priceless values of attributes of compassion, caring, honesty, kindness, good communication and trust with every single patient and celebrating their anniversary with pride and joy.

Dr.Balamurugan is expertise to perform bariatric procedures including gastric band, gastric bypass, min gastric bypass, sleeve gastrectomy, and metabolic surgeries in routine and you can count on bariatric surgeons in India and in Tamilnadu a few as Dr.Balamurugan.

His team is maintaining a holistic approach towards treatment of obesity and wellbeing of individuals creating a healthier society by offering service excellence deploying state-of-the-art facilities in the Department of Obesity & Metabolic Surgery at PSG Super Speciality Hospitals.

Since 15 years, PSG Hospitals is the only 2000 bedded multispecialty Medical College and Hospital in INDIA to give holistic approach for overweight and obese individuals.