

# INDIAN JOURNAL OF APPLIED-BASIC MEDICAL SCIENCES

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## SPECIAL ISSUE ON INNOVATION IN MEDICAL EDUCATION

ADVISORY : NATIONAL

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Sumandeep University

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EDITORIAL:

## SCOPE OF INNOVATIONS IN MEDICAL EDUCATION

In Brief from  
 conference on innovation in medical education  
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Teaching has now been redefined and emphasizing on teacher focused education to a student focused education and the teacher being seen more as a guide by the side rather than lecturer imparting knowledge in a lecture hall. By these conferences we are planning to build educators and scholars willing to share new skills, share new ideas, and present ongoing and explore their completed researches without bias. So purpose of this conference is to provide Basic medical sciences forum for sharing ideas for educational innovations and learning discoveries of senior teachers during their vast experiences of years.

This will enhance teaching at all Levels

- 1] Enhancing in inter teacher interactions
- 2] Enhancing student teacher Interaction,
- 3] Skill Development,
- 4] Cultural development
- 5] Interdisciplinary Education.
- 6] Creating tools of Medical Education and Mentoring.

In future we want to explore newer issues like i.e. leadership issues getting to Win-Win formula for Conflict resolution that Works, newer approaches in medical education i.e. evaluation in medical education, Performance based examinations, Communication skills, emotional Intelligence, Digital and Web-based Education, Such conferences are helpful to build or enhance skills in specific areas of teaching, and making personal effectiveness especially among junior teachers, and those interested in educational reform in medical education.

There are three major areas in innovation

- 1] Rapid Challenges of International Education
- 2] Knowledge Acquisition
- 3] Application in classroom set up.

Day by day, the duration of exploring basic sciences in medical education is reducing .Such situation demand major innovative changes in basic science education if it is to make cost effective and time effective.

All the teachers have faced the time constrain in imparting the knowledge of basic sciences. Now let us plan together to solve by innovative way. The change is eternal process. The changes we have to solve the problems by innovations. Whether problems are Undergraduate, Post graduate program , Curriculum pressures, time pressure, student feeling pressures, multiple shorter courses. Greater emphasis on community-based teaching also affect the time allotted to basic sciences, leading us to think innovative way.

If the innovative changes are to make affective, we have to begin with curriculum and if needed text books and evaluation methods .This can be very beginning step. As mentioned earlier nothing is eternal except chance, the curriculum also need some innovative changes. Curriculum and syllabus are developed only by the Universities and the College and teachers merely followed what was prescribed to be taught. Such curriculum hardly makes clear about specific learning objectives. All three domain of education i.e. Cognitive, psychomotor and affective are to be included in making curriculum and help in imparting knowledge and assessment.

As mentioned previously the central to the newer educational philosophies is the recognition that the learner is the focus, not the teacher. That idea seriously challenges some, who still see themselves as the source of all the studentsí learning (the ijug filling the mugî analogy).

Active learning is now the key, and the value of group work, discussion and projects was repeatedly emphasized. Learners who have different preferred modes and styles ñ construct their own understanding from previous and current experiences. Thus teachers need to draw on a range of resources and strategies.

More tools are now available through the Internet. Newly designed textbooks, well-structured problems, CD-ROMs, web-based delivery systems and various learning packages are available, and accepted it to certain amount in various parts of the world. Indeed, some well-structured simulations available in electronic mode are found far more effective. Though methods i.e. seminars, discussion groups, projects /problem based education, conceptual short lectures have a scientific place and can not be replace by electronic means and need to use more effective way.

## ORIGINAL ARTICLES :

### INFLIXIMAB-

AS A NEWER AGENT FOR THE ULCERATIVE COLITIS

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Introduction and background:

Ulcerative colitis (UC) is an inflammatory bowel disease involving colon and sometimes terminal ileum and rarely involves other systems. UC is

predominantly a mucosal disease of yet undetermined etiology. Chronic watery and then bloody diarrhoea are its characteristic features with acute exacerbations and remissions. Extra-intestinal manifestations like sacroileitis, rheumatoid arthritis may be present. UC is a potential pre-malignant condition and the risk of colonic malignancy increases especially after 10 years of disease. Treatment of UC is predominantly a medical treatment. However, surgery is required either in a complicated UC, disease not responding to any drug therapy or steroid dependent disease or in malignant transformation. 5-Amino Salicylic Acid derivatives such as sulfasalazine, mesalazine etc. are the first line of treatment. The disease not responding to these drugs require either topical steroids or addition of azathioprine or 6-mercaptopurine. Acute exacerbations of the disease require either intravenous steroids or cyclosporine or surgical intervention alone or in combination.

There is new surge of interest in pharmacotherapy on identification of role of Tumor Necrosis Factor-  $\mu$  (TNF- $\mu$ ) in causation of mucosal inflammation noted in UC.<sup>1</sup> Developments in genetic engineering lead to a new class of drugs namely targeted monoclonal antibodies. Infliximab is a chimeric monoclonal antibody targeted against TNF-  $\mu$  and has proved its efficacy in other inflammatory diseases such as Rheumatoid Arthritis, ankylosing spondylitis, psoriatic arthritis and Crohn's Disease. Now since the year of 2005, US Food and Drug Authority (US FDA) has approved its use in UC too.<sup>2</sup>

Tumor necrosis factor- $\mu$  and its role in UC:

TNF- $\mu$  is proinflammatory cytokine released by cells of monocyte-macrophage system, T cells and mast cells on stimulation by various antigens including bacterial antigens and lipopolysaccharides. It is present in either transmembrane or soluble form in the body. All most of all the cells of the body have receptors [Type I (55 kD) & II (75 kD)] for TNF- $\mu$ .<sup>3</sup> Soluble form of TNF- $\mu$  binds to these receptors and generates a cascade of intracellular events that leads to generation of inflammatory response by the cell.

Human and animal studies have shown that TNF- $\mu$  has pivotal role in development of mucosal inflammation noted in UC. High levels of TNF- $\mu$  are noted in serum, urine, stool and mucosa of the patients of UC and its degree of elevation correlates with the disease activity.<sup>4</sup> Knowledge of the role of TNF- $\mu$  in the inflammatory disease prompted use of monoclonal antibodies against it to treat the disease. As efficacy of infliximab was proved in non-fistulizing and fistulizing Crohn's disease, logically research initiated to investigate its role in UC.<sup>5,6</sup>

Infliximab-structure and pharmacodynamics: Infliximab is a genetically engineered, 149,100 d, chimeric monoclonal IgG1 antibody, that has two components 25% mouse and 75% human antibody. It specifically binds to the trans membrane or soluble form of TNF- $\mu$  and leads to its dysfunction or immune mediated &/or programmed death of the cells containing it.<sup>7</sup> Complete human monoclonal antibody, adalimumab is also developed, which is under investigation at present. Route of metabolism and excretion of infliximab is unknown. However, its clearance is very slow as it has high and specific affinity for the TNF- $\mu$ . Its serum half-life is 9.5 days

Use of infliximab in Ulcerative Colitis- what is the evidence?

Till date there are six randomized, double blind, controlled trials have been performed for the use of infliximab in UC. Though some of the trials did not show its efficacy, larger multicenter trials have shown it to be significantly better to placebo in terms of response and maintenance of remission.

Sands et al were the first to study infliximab in randomized controlled manner on 11 patients of steroid refractory severe ulcerative colitis.<sup>8</sup> They used Truelove and Witts score of > 10 to define severe disease. Single dose of infliximab (5mg/kg in 3, 10mg/kg in 3 and 20mg/kg in 2 patients) was compared with placebo. They showed encouraging results of infliximab as compared to placebo in terms of decrease in severity index, Erythrocyte Sedimentation Rate, C-Reactive Protein and requirement of colectomy.

In a study of 43 patients of oral steroid resistant UC, Probert et al showed that there is no significant difference between two doses of infliximab and placebo in terms of achieving clinical and endoscopic remission.<sup>9</sup> However, patients selected for infliximab had higher oral prednisone requirement as compared to patients selected for placebo at the initiation of the study.

Ochsenkuhn et al compared single dose of infliximab versus oral prednisone in 13 moderate UC patients. They showed that both regimes have equal response.<sup>10</sup> However; this study had very less number of patients in each treatment arm.

In 2005 Jarnerot et al<sup>11</sup> compared single dose of infliximab versus placebo in 45 patients of parenteral steroid refractory UC. They showed that requirement of colectomy was significantly less in infliximab group. Median time to surgery was also significantly more in infliximab group as compared to placebo group.

Above-mentioned smaller studies showed conflicting results but the larger well-designed Active Ulcerative Colitis (ACT) I and II trials showed good evidence in favor of infliximab. In ACT I trial<sup>12</sup>, 364 patients of moderate to severe UC were included who had not responded to either steroids, azathioprine or 6-mercaptopurine or in their combinations. Patients received either placebo or infliximab 5mg/kg or infliximab 10mg/kg at 0, 2 and 6 and then every 8 weeks until week 46. They were followed up for 54 weeks. There was significant improvement in clinical response, maintenance of remission and mucosal healing in infliximab groups as compared to the placebo group. However, this study also showed that there is no additional advantage of dose of 10mg/kg as compared to 5mg/kg infliximab. ACT II trial was performed on another 364 patients of moderate to severe UC.<sup>13</sup> This trial also showed the superiority of infliximab as compared to placebo in terms of clinical response, maintenance of remission and mucosal healing rate. Results of these large well designed ACT I and II trials lead to the US FDA approval for the use of infliximab in patients of UC who does not respond to or intolerant to 5-aminosalicylates, steroids, 6-mercaptopurine or azathioprine.

Adverse effects of infliximab:

Infection is the commonest complication of infliximab. Upper respiratory tract and urinary tract are the commoner sites for the infections. However, other bacterial, fungal and viral infections are also documented in the literature. It is not clear that the whether the infections developed are due to infliximab alone or due to

previous use of steroids and immunomodulators or due to chronic disease itself. Reactivation of latent tuberculosis is also a major adverse effect of

infliximab. It is estimated that risk is 4 times higher as compared to other drugs and the pattern and nature of tuberculosis is also unusual. All the patients should be screened for latent tuberculosis in form of detailed history, tuberculin test and x-ray chest before starting infliximab. If patient is found to have latent tuberculosis on these tests then 9 months of isoniazide treatment should be completed before infliximab.<sup>14</sup> As 25 % of the structure of infliximab is of murine immunoglobulin, it has potential to generate immune reactions. Acute infusion reactions are defined as any adverse event occurring during or within 2 hours of an infusion while delayed reactions can occur up to 14 days after infusion. Acute reactions can be from nausea, chills, fever to severe anaphylactic reactions. Delayed reactions are serum sickness like reactions characterized by headache, myalgia, polyarthralgia, rash and sore throat.<sup>15</sup>

New onset and worsening of already existing congestive heart failure is reported in numerous reports with the use of infliximab.<sup>16</sup> Similarly, demyelinating neural diseases like multiple sclerosis is also noted with the use of infliximab.<sup>17</sup> Hepatotoxicity is reported in some cases so infliximab should not be prescribed to the patients who have liver enzyme levels five times higher than the normal levels.<sup>18</sup>

As other immunosuppressive therapies are associated with the increased risk of lymphoma it is possible that infliximab may also lead to lymphoma and there are reports published for the same. However, still the issue of development of lymphoma & other malignancies is not yet settled.<sup>19</sup> Infliximab is classified into category B medication for the pregnant females and it is not yet known whether it is secreted in breast milk or not.<sup>18</sup>

Conclusion: Infliximab- a chimeric monoclonal antibody against TNF- $\mu$ , is a new class of drug have proved its usefulness against rheumatoid arthritis and Crohn's disease. It is now approved for the use in patients of ulcerative colitis who are resistant to or intolerant to 5-ASA derivatives, azathioprine, 6-mercaptopurine and steroids in moderate disease. Its use is also justified in patients of severe, steroid resistant ulcerative colitis before considering cyclosporin or surgery. However, cost of therapy and possible adverse reactions should be considered.

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ELECTROCARDIOGRAPHIC CHANGES IN PATIENTS OF CHRONIC OBSTRUCTIVE PULMONARY DISEASE

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### Abstracts :-

Chronic Obstructive Pulmonary Disease influence the electrical events of the heart in the form of decrease transmission of electrical potential and alteration in position of heart. An Electrocardiographic study was performed of 50 patients suffering from COPD, diagnosed on the basis of clinical picture and PEFr.

In our study, the Right axis deviation of P wave seen in 50 % and QRS wave in 54%, vertical heart in 72 %, clock wise rotation in 76 % , P- Pulmonale in 32 %, RVH in 20% and 80% Of ECG shows low voltage QRS complex. The changes are due to dilatation and \or hypertrophy of the Right Atrium and Right Ventricle, diminished electrical activity by emphysematous lung and vertical position of the heart.

Key words :- Electrocardiogram. (ECG), Chronic Obstructive Pulmonary Disease (COPD), Peak Expiratory Flow Rate (PEFR)

### INTRODUCTION:-

With increase in modernization, now a days, air pollution, industrialization, dusty occupation and smocking is increasing day by day, due to which in a present era there is an increase in prevalence of lung diseases, parThe term COPD refers to a variety of bronchopulmonary disorders, with the primary defect being the obstruction to the airflow. The most fascinating aspect has been their cardiac complications and more so the ECG changes which they produces. However, the ventricular functions and ECG fluctuation are not unanimous.

COPD, influences the electrical events of the heart in following basic respects.

(1) The voluminous lung has an insulating effect and thereby diminishing the transmission of electrical potential to the registering electrode.

(2) The heart descends to lower position due to a lowering of diaphragm. This will alter the position of heart relative to the conventional precordial electrode positions.

(3) The right ventricle and right atrium becomes compromised due to a reduction of pulmonary vascular bed. This will result in right ventricle hypertrophy and dilatation as well as right atrial enlargement.

The present study was contemplated to study the ECG changes in COPD, keeping in mind the recent advances in this field and with the maximum utilization of the available resources so, as, not to fall short with the correlation of respiratory functions interrelating with cardiac manifestation.

### AIMS OF STUDY :-

(A) To study Influence of chronic obstructive pulmonary disease on electrocardiogram.

(B) To find out the incidence of various changes in-patient of COPD.

### STUDY GROUP:-

50 individuals of either sex of suffering from COPD were studied. There were 20 females and 30 male patients in study group.

### MATERIAL AND METHOD:-

The studies of 50 cases of chronic obstructive pulmonary diseases of both sexes were subjected in this study.

The diagnosis of COPD was made on the basis of history and examination of respiratory as well as cardiovascular system. PEFr (Peak Expiratory Flow Rate)

is also measured with wright's flowmeter to know the severity of disease. The diagnosis are also supported by different radiological evidences.

Standard 12 lead electrocardiogram (ECG) with the rhythm strip was taken. ECG was analyzed for P axis, QRS Axis, position of heart in relation to anterior-posterior and vertical axis, low voltage in lead I and V6, Right Atrial and Right Ventricular Hyper trophy.

OBSERVATION :-

A total 50 patient of COPD were studied, out of which there were 20 females and 30 males. The age and weight wise distribution of patient is given in Table I and II respectively. In present study, The Right axis deviation of P wave seen in 50 % and QRS wave in 54% Position of heart in relation to antero-posterior axis in the form of vertical position heart seen in 72 % and rotation along with longitudinal axis in form of clock wise rotation seen in 76 % . RAH in 32 %, RVH in 20% and 80% of ECG shows low voltage QRS complex. ECG findings of Study Group is shon in Table IV

TABLE :- I

Age in Years	<30	31-40	41-50	51-60	>60
Patients	2	13	10	13	12

TABLE :- II

Weight (in kg)	<30	31-40	41-50	51-60	>60
Total	16	13	05	13	03

Subjects

TABLE :- III

Presence of Important Symptoms and clinical Finding in study book

Symptoms And clinical finding	Number of subject	Per. (%)
Cough	29	58
Breathlessness	36	72
Chest pain	3	6
Expectoration	10	20
Weight loss	2	4
Anorexia	2	4
Fever	5	10

Ronchi	21	42
Creptitation	5	10

Clubbing	2	4	
PEFR *in ml) :-			
1). < 60	2	4	
2). 60-100	8	16	
3). 100-200		12	24
4). 200-300		14	28
5). > 300	14	28	

TABLE :- IV  
ECG CHANGES

ECG Changes	Number of subject	Percentage	
P-Axis			
1. Normal Axis	21	42	
2. Right Axis	25	50	
3. Left Axis	04	08	
4. Indetermined Axis	00	00	
QRS-Axis			
1. Normal Axis	19	38	
2. Right Axis	27	54	
3. Left Axis	03	06	
4. underermined	01	02	
Position of Heart			
1. Vertical	36	72	
2. Horizontal	04	08	
3. Intermediate	10	20	
Rotation of Heart			
1. Clockwise	38	76	
2. Anti Clockwise	02	04	
3. Normal	10	20	
Low voltage of ECG	40	80	
Right Ventricular Hypertrophy	10	20	
Right Atrial Hypertrophy	16	32	

#### DISCUSSION :-

A study has been made of Electro cardiogram (ECG) in patients primarily suffering from chronic obstructive pulmonary disease (COPD). The Airway obstruction and Emphysema existed to a variable degree in these patients and

an attempt has been made to assess the influence of these factors on electrical activity of Heart.

The P wave axis usually varies between  $+30^{\circ}$  and  $+60^{\circ}$ . Between  $0^{\circ}$  to  $+30^{\circ}$  is considered as left axis and more than  $+60^{\circ}$  is considered as right axis deviation of P wave.

In COPD the changes of P wave axis occur due to definite right atrial hypertrophy (RAH) and vertical position of heart due to increased lung volume in COPD. In present study the right axis deviation was seen in 50% of cases.

The QRS axis normally varies between  $-30^{\circ}$  to  $+110^{\circ}$ . Less than  $-30^{\circ}$  is left axis and more than  $+110^{\circ}$  is considered as right axis deviation of QRS wave.

In COPD the right axis deviation is because of

- Increased right ventricular muscle mass.
- Clockwise rotation along longitudinal axis (in present study 76%).
- Some degree of RBBB if present, may accentuate the septal force from left to right.

The severity and duration of Emphysema has also got relation with QRS axis. In present study 54% of patients has right axis deviation of QRS.

In COPD, heart assumes vertical position because increase in lung volume causes compression of heart. The lower position of diaphragm also makes the heart more vertical or semi vertical. In present study, 72% of patients has vertical and 20% has semivertical heart.

In present study 32% of patients has P pulmonale suggestive of RAH and 20% of patients have Rs, R/S more than one suggestive of RVH.

QRS complex less than 5mm in lead I is suggestive of low voltage ECG. This low voltage is due to Emphysema, because Emphysema decreases the conductivity of lungs and impairs the transmission of cardiac potential to the recording electrodes on body surfaces.

Low voltage QRS in lead I is present in 80% of patients which is one of the characteristic finding of COPD.

Finding in the present study are supportive of commonly held views and comparable published work.

#### ACKNOWLEDGEMENT :-

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A STUDY OF PERIPHERAL BLOOD FOR MALARIAL  
HAEMATOPATHIC CHANGES

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Abstract

Different species of plasmodium affect people in different geographical regions within India causing a wide range of systemic effects including hematological changes. Aims- This study was conducted to identify the predominant species of plasmodium in patients of malaria a tertiary hospital in Bhavnagar district and to detect the predominant hematological changes in these patients. Materials and Methods ñ Over a two month period, the blood sample of 69 patients detected to have malaria were tested for hemoglobin, total and differential leucocyte count, ESR, platelet count, peripheral smear examination and reticulocyte count. Result- In 85.5% of the patients of malaria, Plasmodium falciparum was the predominant species. The predominant hematological features noted were anemia, elevated ESR and thrombocytopenia in 84.1%, 97.1% and 76.8% of patients respectively. Differences in the total and differential leucocyte count, peripheral smear examination and reticulocyte count were not significant. Conclusion- Even in the absence of fever, the presence of thrombocytopenia especially in association with anemia and an elevated ESR should warrant a search for the malarial parasite.

Key words: Anemia, ESR, malaria, P.falciparum, P vivax, thrombocytopenia, malarial hematopathy.

Introduction

The term malarial hematopathy includes the involvement of one or more hematopoietic cell lines, endothelial dysfunction and occurrence of thrombotic microangiopathy<sup>1</sup>. The hematological alterations that have frequently been found in malaria are anaemia and thrombocytopenia. Less frequent findings are leucocytosis, leucopenia, increase in band cells, toxic granules in neutrophils, atypical lymphocytosis, monocytosis and eosinophilia, increased ESR, pigment in neutrophils and monocytes and bone marrow depression and dyserythropoiesis <sup>2, 3, 4, 5, 6, 7</sup>. Acute phase reactant proteins like C reactive protein (CRP) and serum amyloid A (SAA) have been found in increased concentration in patients of malaria<sup>8</sup>.

The predominant causal organisms of malaria in the South East Asia region are P.vivax followed by P. falciparum<sup>9, 10, 11</sup>. Scanty literature is available about the predominant species and the hematological changes occurring in patients of malaria in Saurashtra region. Hence this study was undertaken in a tertiary hospital of Bhavnagar district to identify the predominant species of parasite causing malaria, to detect the predominant hematological changes in these patients

Materials and Methods

Eighty two cases of malaria detected during smear examination in the

hematology laboratory over a period of two months during the months of August to October were studied. Cases with additional causes of fever which are known

to induce hematological findings similar to those seen in malaria like dengue were excluded from this study. Cases where adequate sample of blood was not available had to be excluded. These included two cases of mixed infection and cases of past malarial infection. Hence a total of 69 new cases of malaria were further studied for various hematological parameters. Tests were performed manually using standard methods and techniques. Hemoglobin (Hb) estimation, total leucocyte count (TLC), differential leucocyte count (DLC), erythrocyte sedimentation rate (ESR), platelet count (PC), reticulocyte count (RC) and peripheral smear examination (P/S) were carried out and also the typing, staging of the parasite and grading of parasitaemia were carried out using thin and thick smears respectively as per established criteria. The groups created for assessment of the data obtained in the study were as per values shown in table 1.

Fifty nine patients had *P falciparum* infection (85.5%) and ten patients had *P vivax* infection (14.5%). The results obtained are shown in Tables 1 above. The tables show that mild and moderate degrees of anemia, moderate and severe elevation of ESR, all degrees of thrombocytopenia, decreased reticulocyte count and hypochromic anemia were the predominant and statistically significant findings ( $p < 0.05$ ) (table1).

Table 1 -: Hematological values in % in Pf and Pv - total 69 patients

Parameter %	Values	PF %	PV %	Total
Hb gm/dl	> 12.5	15.3	20	15.9
	10-12.5	30.5	50	33.3
	7.0-9.9	42.5	30	40.6
	<7.0	11.9	0	10.1
TLC cells/cumm	4000-11000	94.9	100	95.7
	<4000	1.7	0	1.4
DLC %	>11000	3.4	0	2.9
	Normal	78	90	79.7
DLC %	Neutrophilia	11.9	10	11.6
	Lymphocytosis	10.2	0	8.7

ESR	0-20	3.4	0	2.9
	21-50	16.9	10	15.9

mm/1st hour	51-100	56.6	50	37.7
	>100	44.1	40	43.5
	1.5-4.5 lac	20.3	40	23.2
	1.0-1.49lac	13.6	10	13
PC Lac/ cu mm	50000-99000	20.3	30	21.7
	20-50000		18.6	10
	<20000	27.1	10	24.6
RC % 17.4	1.0-2.5	30.5	30	30.4
	<1.0	42.4	70	46.4
	2.5-5	20.3	0	17.4
	>5	6.8	0	5.8
P/S	Normocytic, normochromic NN	28.8	60	33.3
	Normocytic Hypochromic NH	22	10	20.3
	Microcytic Hypochromic MH	35.6	30	34.6
	Macrocytic M	11.9	0	10.1
	Dimorphic Di	1.7	0	1.4
Stage	Trophozoites T	44.1	10	39.1
	T+Schizonts S	0	10	1.4
	T+S+gametocytesG	1.7	10	2.9
	T+G	27.1	60	31.9
	G	27.1	10	24.6
Grade	1	30.5	10	27.5
	2	37.3	40	37.7
	3	11.9	30	14.5
	4	20.3	20	20.3
Normoblast	Present	10.2	0	8.7

Table 2 -: Hematological profile of Pf, Pv and mixed M infection in different studies\*

Study (total Cases)	Jain9	Jadhav2	Khan4	Sharma12
Present Study	(70)	(264)	(90)	(30)
Adult,	NA	1.00,	NA	NA
Paediatric		0		
Sex M,F	NA	53, 47	NA	NA
				56.5,

27

43.5

Pf, Pv, M.	55.7, 32.8, 85.5,14.5,	42.4,44.7,	only Pf	only	Pf
	11.4	12.9	studied	studied	
Anaemia	94.28	NA	NA	10	84.1
TLC ? in	11	14.0	3	6.6	1.4
TLC ? in	9	4.9	21	13.3	4.3
Neutrophilia	NA	15.1	NA	NA	11.6
Lymphocytosis	NA	NA	NA	NA	8.7
Monocytosis	17	NA	NA	NA	0
Eosinophilia	10	NA	NA	NA	0
Neutropenia	NA	5.6	NA	NA	1.4
ESR ?	NA	NA	46	NA	97.1
PC ?	70	NA	NA	90	76.8
RC ?	44	NA	NA	NA	23.2
P/S NN	50	NA	NA	NA	30.4
NH	42				14.5
MH	4				33.3
M	4				10.1
Di	NA				11.6

\* Data of all studies is in percentage or has been converted to percentage form for convenience. Na : not available, ?= decrease, ?= increase

## Discussion

A comparison of the findings of this study was made with the studies of Jain et al<sup>9</sup>, Jadhav et al<sup>2</sup>, Khan et al<sup>4</sup>, and Sharma et al<sup>12</sup>.(Table 2)

*P. falciparum* infection is predominant in this study as compared to *P. vivax* infection in studies from other parts of India (Jain et al<sup>9</sup> and Jadhav et al<sup>2</sup>)

Majority of the patients were adults. No significant gender difference was noted. Anemia was noted in 84.1% of the patients of this study. These results were comparable with Jain et al. These patients had no history of anaemia in the past. Most patients in this study had mild to moderate degree of anemia. Severe anemia was seen only in 10.1% patients. No association was seen between Hb and parasitaemia. Literature also does not mention such correlation. Anaemia in malaria is suggested to be due to multifactorial causes including destruction of parasitized RBCs and bone marrow suppression<sup>13</sup>.

95.7% of the patients in the present study had a normal total leucocyte count. Some studies have reported both leucocytosis and leucopenia<sup>2, 4, 11, 14, 15</sup>. Leucocytosis is reported to be associated with more than 10 % parasitaemia and is also associated with both a severe disease and high mortality in children with *P. falciparum* malaria<sup>14</sup>. Leucopenia has been reported to occur more frequently in *P. falciparum* infection<sup>15</sup>. Jadhav et al<sup>2</sup> found no statistical difference in white blood cell count amongst the two species. No such difference in count was seen in this study too. Neutrophilia, monocytosis, eosinopenia and reactive lymphocytosis were found in children with acute malaria. Rebound

eosinophilia has been noted after treatment in another study<sup>3</sup>. Monocytosis and eosinophilia were noted in both types of malaria in the study of Jain et al <sup>9</sup>.

Jadhav et al<sup>2</sup> found no significant association between neutrophilia and infection by the two species. Lymphocytosis was found in *P falciparum* infection in this study though not statistically significant.

ESR level was elevated in 97.1% of cases. 43.5% patients had ESR levels above 100 mm / 1st hour. 11 patients had ESR values higher than 150mm/1st hour. ESR was found to be increased in 46% patients by Khan et al<sup>4</sup> Disproportionate ESR values were found with normal and even mildly decreased Hb levels.

Thrombocytopenia was a significant finding in this study, being present in 76.7% of the patients. The lowest platelet count observed in this study was 10,000/cumm. Jadhav et al<sup>16</sup> found that 78.4% of the patients in their study had mild to moderate thrombocytopenia, findings similar to this study. Memon et al<sup>17</sup> found 70% of their malaria patients had thrombocytopenia and most of them had mild thrombocytopenia. Spurious low platelet counts have been recorded in some cases when platelets have been found attached to parasitized RBCs<sup>18</sup>. The mechanism of thrombocytopenia in malaria is uncertain. Immune mediated lysis, sequestration of platelets in the spleen, a dyspoietic process in the marrow leading to diminished platelet production and abnormalities in platelet structure and function and invasion of platelets by malarial parasite have been described.

Sharma et al<sup>12</sup> found predominantly normochromic normocytic anemia in malaria patients in their study where as hypochromic anemia was more frequent in this study. Normochromic normocytic anemia was seen in 60% of our *P vivax* patients.

46.4% of patients in this study had decreased reticulocyte count which indicated a suppressed bone marrow. The decrease was more in patients of *P vivax* infection. 27.1% of the *P falciparum* patients had an elevated reticulocyte count suggesting hemolysis. None of the *P vivax* patients had elevated reticulocyte count. Similarly normoblasts were present only in 10.2% patients all of whom had *P falciparum* infection. Both a decreased reticulocyte count and absence of significant normoblastemia in malaria in spite of hemolysis suggest that the cause of anaemia appears to be multifactorial and includes bone marrow suppression<sup>13</sup>.

#### Conclusion

The predominant species of the malarial parasite infecting malarial patients in Bhavnagar district was found to be *Plasmodium falciparum*. The predominant hematological findings in these patients were anemia, elevated ESR and thrombocytopenia. The ESR levels were not proportional to the Hb levels. Occurrence of thrombocytopenia associated with anemia and elevated ESR should warrant a search for malarial parasite even in the absence of fever.

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## EMERGENCY HYSTERECTOMY

IN OBSTETRIC PRACTICE : A LIFE SAVING MEASURE:

ANALYSIS OF 22 CASES OF OBSTETRIC HYSTERECTOMY

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This study is an analysis of 22 cases of obst. Hysterectomy done at V.S. General Hospital, Ahmedabad over a period of 1.5 years. Post Partum Hemorrhage was the commonest indication. Total no of deliveries occurred during this period was 8925 and so the incidence of obst. Hysterectomy comes around 0.25%

### Summary

This is retrospective analysis of 22 cases of obstetric hysterectomy performed at V.S.G.Hospital over a period of 1.5 years from January 2003 to July 2004. Post Partum Hemorrhage was the commonest indication. Total hysterectomy was done in 60% case. There were 2 maternal deaths. Majority of patients were emergency cases. Total no of deliveries during this period was 8,925 & so incidence of Obstetric Hysterectomy is around 0.25 %

### Introduction

Obstetric Hysterectomy is a catastrophic inevitable life saving emergency procedure in cases of uncontrollable obstetric hemorrhage, rupture uterus, morbidly adherent placenta, severe infection and trauma. It is the last resort to save mother's life but at the same time the mother's reproductive capability is to be sacrificed. Most of the time it is a very difficult decision and requires good clinical judgment. The maternal outcome greatly depends on timely decision to perform obstetric hysterectomy. The present study is aimed to detect the incidence, indication, complications & mortality of obstetric hysterectomy.

### Material and Methods

The present study is the analysis of 22 cases of emergency hysterectomies for obstetric indication done over a period of 1.5 years at V.S.G. Hospital, Ahmedabad.

A detailed study of the age and parity of the patient, registration record, gestational age, condition of the patient, indication of obstetric hysterectomy and

intra and post operative complication of the procedure was made.

## Observation & Results

There were total deliveries of 8,925 patients during this period, showing incidence of 0.25%

of obstetric hysterectomy in our study.

Out of 22 patients only 5 were booked patients while 17 were emergency patients.

Age distribution shows that majority of our patients were in age group 21-30 years. There were 3 (13.64%) patients below the age of 20 years.

On studying obstetric status, it is observed that incidence of obstetric hysterectomy was more in multiparous patients being maximum in para 4 or above (40.9%). All patients except one were having gestational age more than 28 weeks. (Table-3)

Table-4 shows that most common indication of obstetric hysterectomy was postpartum haemorrhage (54.54%). Out of 12 patients of haemorrhage, 7 were of atonic PPH, 3 of placenta previa and 2 patients had traumatic PPH. There were 3 patients having morbidly adherent placenta, one of which had encroachment on bladder wall and while removing it there was damage to the bladder wall. The second

Table : 1

### Distribution to age group.

Age	cases	Percentage
≤ 20 yrs	3	13.64%
21 ñ 25 yrs	7	31.82%
25 ñ 30 yrs	8	36.36%
30 ñ 35 yrs	3	13.63%
≥ 35 yrs	1	4.55%

Table : 2

### Distribution according to parity

Parity	Number of cases	Percentage
0	4	18.18%
1	1	4.55%
2	6	27.27%
3	2	9.09%
4 & Above	9	40.91%

Table : 3

### Gestational Age

Wks)	N	Percentage
≤ 28 Wks	1	4.55%

$\geq 28$ Wks	21	95.45%
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Table : 4

### Indications for Obstetric Hysterectomy

Indication	Number of cases	Percentage
PPH	12	54.54%
Rupture Uterus	6	27.27%

Table 5 complications

Morbid Adhesion of Placenta	3
DIC	2
Septicemia	2
Renal failure	1
UTI	3
Wound Complication	2
VVF	1

most common indication was rupture uterus (27.27%), out of which 55% had previous scar that gave way during labour, 45% had obstructed labour. One patient had perforation following second trimester MTP, who underwent adnexectomy along with hysterectomy.

Table-5 shows the details of complications. There were two patients of altered coagulation and required transfusion of blood & other blood products. One patient having hysterectomy because of obstructed labour had VVF. There were two deaths, one due to DIC & other due to septicemia.

### Discussion

Obstetric hysterectomy is an emergency procedure still used widely in modern obstetrics to save the life of mother in life threatening catastrophe like intractable post partum haemorrhage, rupture uterus or severe infections. The incidence of obstetric hysterectomy is 0.25% in our study, which is 0.32% reported by Mantri et al (1993). Majority of our patients were unbooked, emergency patients referred from outside. In some young primipara patients other conservative methods were tried before deciding upon hysterectomy, but again timely decision to perform hysterectomy is vital to reduce the maternal mortality. The most common indication was PPH (54.54%) from this 50% patient were of Atonic PPH, (33.33%) were of placenta praevia, and (16.67%) were of traumatic PPH. One patient of placenta praevia had morbidly adherent placenta encroaching the bladder wall. The second most common indication was rupture uterus (27.27%) out of which 55% had previous scar that gave way during labour, 45% were having obstructed labour. One patient had perforation following second trimester MTP. Comparing our studies with other studies shows that some others had higher incidence of rupture uterus requiring hysterectomy [Ambiye & Venkatraman(1988) had 67.8% , Mantri et al (1993) had 67.2% incidence of rupture uterus]. Total Hysterectomy was done in 70% cases while

30% under went subtotal hysterectomy in our studies. Additional surgical

procedure in form of internal iliac ligation was done in three patients along with hyster

ectomy. Catastrophes like intractable post partum haemorrhage, rupture uterus or severe infections. The incidence of obstetric hysterectomy is 0.25% in our study, which is 0.32% reported by Mantri et al (1993). Majority of our patients were unbooked, emergency patients referred from outside. In some young primipara patients other conservative methods were tried before deciding upon hysterectomy, but again timely decision to perform hysterectomy is vital to reduce the maternal mortality. The most common indication was PPH (54.54%) from this 50% patient were of Atonic PPH, (33.33%) were of placenta praevia, and (16.67%) were of traumatic PPH. One patient of placenta praevia had morbidly adherent placenta encroaching the bladder wall. The second most common indication was rupture uterus (27.27%) out of which 55% had previous scar that gave way during labour, 45% were having obstructed labour. One patient had perforation following second trimester MTP. Comparing our studies with other studies shows that some others had higher incidence of rupture uterus requiring hysterectomy [Ambiye & Venkatraman(1988) had 67.8% , Mantri et al (1993) had 67.2% incidence of rupture uterus]. Total Hysterectomy was done in 70% cases while 30% underwent subtotal hysterectomy in our studies. Additional surgical procedure in form of internal iliac ligation was done in three patients along with hyster

ectomy. One patient with morbidly adherent placenta over bladder required repair of bladder wall. The patient with MPT perforation underwent adnexectomy along with hysterectomy. There were two maternal deaths, one due to DIC and other was due to septicemia. The mortality in our study is 9% (2 patients), Mantri et al(1993) reported 14%. Sturdee and Rushton (1986) had no mortality in their studies. No mortality was because of surgical procedure.

## Conclusion

Identification of high risk factors, active management of labour and early intervention can be helpful in decreasing the need for Obstetric Hysterectomy. Timely transportation and timely decision to perform hysterectomy, adequate infusion of blood and use of higher antibiotics are vital to decrease morbidity and mortality in these cases.

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### QUESTIONING TECHNIQUE:

AN INNOVATIVE EDUCATION TECHNOLOGY IN CLASS ROOM SESSION, A SMALL SCALE SURVEY

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Well, basically, we are medical teachers .May be we are doctor and even medical specialist also. It can be anatomist, biochemist, physiologist, pharmacologist, physician, surgeon or gyneacologist. But our common Core task is medical teaching. So it is our responsibility to up date our knowledge of teaching technology or in better word the education technology. Medical seminars are a right place to learn about education technology even and above learning our speciality. We as a teacher are life long learner.

The term educational technology is an unfortunate one for some it indicates an exaggerated concern with the mechanisms of educations like audio-visual media and computers.

In November 1964 Skinner a pioneer behavior physiologist gave a lecture to the Royal Society entitled 'The Technology of Teaching' (Skinner 1968). This was perhaps the forerunner of the term 'educational technology'; Skinner used it not essentially in a mechanistic sense, but rather to emphasize that because of the nature of the emerging principles of programmed learning education was no longer only an art but rather based on simple physiological principles i.e. rewards and punishment. He used the term reinforcement and its role in learning process.

The principles underlined the importance of the learner as central to the teaching/learning process, pointing to the change from a largely teacher-oriented process to one where a student can take responsibility for his own progress. It was this change in emphasis that led to the emergence of the discipline of educational technology.

The education technology has taught a very good lesson to us that we as a teacher must know the objective of our teaching i.e. by now you must have accepted that the knowledge in any field is vast like ocean. And teacher must be clear the three zone of education

- A] Must know
- B] Good to know
- C] Nice to know

What student should know at end of our

teaching session is the student must know ZONE .This concept help the teacher to create the objective of the topic one wish to teach to achieve such objective by the student. The questioning technique is the one of the best method. In this small article various aspects of questioning techniques is discussed. We usually think that questions are asked in examinations i.e. oral or written one. In fact questioning techniques has totally different purpose in class room set up .It is a skill to be acquired by every medical teacher in day to day teaching. It is a teaching technique which involves skilled use of teacher-student interaction. It is technique to obtain feedback from the student about the topic taught. It is a very

good method to stimulate detail discussion to think about the topic in extended manner. It creates the interest and curiosity among the students about the topic to be learned. Questioning keep the learner active, alert, awake and keep the topic interesting and it make the learner and teacher to acquire the knowledge further.

Unfortunately this time and tested method of teaching is not used by teacher and students adequately for so many reasons including our pattern of curriculum and our classroom type lecture of education system. It is the best way to modify the student learning behavior. This questioning technique of education is responsible for more than 50% reason to visit the medical library . The literature about the questioning technology and skill for medical teachers and it is found various types of questioning pattern i.e.

- 1] Lower order question Low knowledge
- 2] Middle order question comprehension or application
- 3] Higher order question analysis, synthesis or evaluation on the topic learned.

It is reasonable that teacher can sort out this order according to their specialities, objectives and the topic taught.

Pattern of questioning can be different depending upon student Set up and number

The each question has their qualitative aspects i.e.

- 1] Simple questions "What is the normal color of sclera"
- 2] Probing question "why do you examine sclera?"
- 3] Higher-order questions "which hereditary disease the baby born with abnormal color of sclera?"

In classical teaching session, the value of question also very with the thinking time

[a] Ask for immediate response

[b] Allow some response time

[c] Allow adequate preparation time for more carefully reasoned response.

Skill of questioning and Probing Question is a real part of Teacher's activities, though not adequately used. In one survey it was found that 60% of questions were asked for just recall facts, 20% were just Students to think and 20% for procedural responses and Classroom management.

Some caution on probing questioning:

Components of the skill of probing questions:

- [a] Prompting: Questions where there is a hint for the Students who helps in reaching expected response.
- [b] Seeking further information: Questions where more information is sought, asking how and why of correct or wrong part of the partially correct answer.
- [c] Refocusing Questions: Questions which seek from the Students to compare the phenomenon with other phe nomenon for similarity or contrast or for any other relationship.
- [d] Redirected questions: Questions which are directed to more than one Students for response.

[e] Increasing critical awareness: Questions which require the Students to rationally justify his response.

The skill of questioning is not gained within a day .It requires thorough factual knowledge of subject, regular practice, keen interest.

But the most important is cooperation of students and of course the authority. But the important of an attitude of the teacher is also equally important.

Objective of Skill of questing must be clear to achieve to higher mental abilities and motivate the student to learn further.

When the teacher puts a question to the class, he/she gets various types of responses from the students. In such a situation, when correct responses are not given, the teacher should lead the pupils to the correct response without resorting to punishment. The teacher has to go deep into the responses or probe into them by asking a number of questions.

## OBJECTIVE STRUCTURED PRACTICAL EXAMINATION (OSPE)

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Evaluation: is a continuous process based upon criteria cooperatively developed concerned with measurement of the performance of the learners.

Test: A test or an examination is a device or an instrument to measure the knowledge or the achievement of the learner.

Practical examination: A practical test is one that requires the student to perform a professional task in an environment and under conditions the same as or similar to those in which he will have to perform it in his future professional life.

The student:

- ï Measures blood pressure of another student.
- ï Measures own vital capacity.
- ï Prepares a blood slide.
- ï Tests a given sample
- ï Writes prescription for a condition
- ï Interprets a slide microscopically

Conventional practical examination: Disadvantages

- ï Insufficiently standardized conditions
- ï Insufficient objectivity and intrusion of irrelevant factors.
- ï Limited feasibility for large groups
- ï Difficulties in arranging for examiners to observe candidateís skills

## OBJECTIVE STRUCTURED PRACTICAL EXAMINATION (OSPE):

It is a method of assessing a studentís skill/competence which is objective rather than subjective and in which the areas tested are carefully planned by the examiners

Principle of OSPE:

The competence is broken down in to its various components. Each component

is the objective of one of the questions (stations) in the examination.  
Conducting OSPE:

- ï Skill to be tested is given in form of a specific question
- ï To be answered in 4-5 minutes
- ï Each question is a station
- ï Student rotates round a number of stations, about 10- 20
- ï Spends specified time on each station (4-5 minutes)
- ï On a signal (e.g. bell) moves to the next
- ï For each question (station) a check list is prepared by the examiners in advance
- ï Check list is prepared by breaking the skill to be tested into its vital components and precautions to be observed

There are two types of stations:

1. Procedure station
2. Question station

1. Procedure station:

Example 1

Measure Vital capacity / B.P. by auscultatory method

- Examiner is present
- Uses a check list to record the performance of the students as they pass through stations.

Example 2

Slide for microscopic examination

- No examiner
- Student asked about his findings & interpretation at the next question station.
- May be given additional information and asked about clinical application.  
(MCQs / TRUE ñ FALSE type questions used)

2. Question Station:

MCQs related to finding at previous procedure station or Interpretation of lab report

Example of examiner's Checklist

Question: You are provided with an oxygen-filled spirometer. Determine your vital capacity.

Examiner's checklist		Yes	No	
1.	Does he check the spirometer for leakage?			0.2
		0		
2.	Mouth piece inserted properly			
		0.1	0	
3.	Nose clipped properly			
		0.1	0	
4.	Does he take a few normal breaths before determining vital capacity ?			
		0.2	0	
5.	Takes a deep inspiration			
		0.4	0	
6.	Exhales maximally			
		0.4	0	
7.	Takes more than one reading			

- 0.2                      0
8. Takes the highest reading as the vital

capacity

0.2                    0

9. Also determines two-stage vital capacity

0.2                    0

Advantages of OSPE:

1. Validity:

Compared to Traditional Practical examination

- ï What is to be tested is decided in advance
- ï Contents according to the seniority of student, simple to complex
- ï Minor specialties can be tested

2. Reliability:

- ï Variable of examiner removed to a large extent.
- ï Checklist and MCQs makes examination more objective.
- ï Large number of students tested.
- ï Checklist ñ junior examiner can be included.

Disadvantages of OSPE:

- ï Knowledge and skills tested in COMPARTMENTS, not for ability to look at the patient as a whole. Can be used as supplement to different method of evaluation
- ï DEMANDING for examiners
- ï TIME taken for planning in advance greater than traditional examination.
- ï More effort and time are required before examination, which can be reduced with a) Experience and  
b) Bank of objective test items & checklist.

Uses of OSPE:

In any situation where one has to assess a studentís PRACTICAL /psychomotor skills

1. Stage of student:

- ï As term ending & internal examination (Formative)
- ï Final (summative) examination.

2. Purpose:

- ï Criteria reference ñ Pass / Fail decision (Criteria decided in advance)
- ï Formative - To find out areas where deficient & needs to improve  
- Provides Feedback
- ï Selection of students for a course

3. Relation to other assessments - may be used as

- ï Sole assessment of psychomotor competence
- ï Combined with some other

Combined with some other form of assessment

Some examples of OSPE:

- ï Determining vital capacity
- ï Charging the Neubauer chamber for doing the RBC count

- ï Recording blood pressure by auscultatory method
- ï Preparing the blood smear from given sample
- ï Identification of structures in the specimen (e.g. horizontal section of brain) or a dissected part

## INNOVATIVE EDUCATION MAKING TEACHING A PLEASANT EXPERIENCE

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A large number of teachers are overwhelmed by the demands made upon them by the syllabus, students, the college and the society at large. They find teaching stressful and tiring. Expectations of students and the college keep rising. These expectations themselves, in fact carry within them, the answer. It makes teaching in particular, and education in general, more exciting and challenging.

To be able to understand this, we need to critically examine the current role of such teachers and see if it needs to be expanded. Teachers feel that their main role is to master the subject and pass the knowledge, thus gained, to their students in the best possible manner. Quantity and Quality are emphasized, but within the boundaries of the subject.

Education shifts from merely teaching to a fine combination of teaching and learning. We look at Medical colleges as a place where knowledge is communicated. If colleges limit themselves to merely a place or source to communicate knowledge, it is natural to see administrators focusing their efforts in getting and providing the best infrastructure and academicians focusing on subject matter and communication skills. These, of course, are very important elements and nobody can negate their importance or take casual approach toward these aspects of education. But excellent teachers and excellent educational institutions go far beyond these. Excellent academicians and administrators consider providing the Learning Environment as one of their primary responsibility. Learning environment shifts the emphasis from subject and brings students in focus. It adds another dimension in the role of teachers ñ being learners themselves. They realize that unless students learn, their teaching remains incomplete. The interesting thing about successful teachers is that they never stop learning. Institution assumes adequate importance. Thus, conducting research becomes an important responsibility of such institutions. Research allows teachers to keep learning and create a 'Learning Environment'. The canvas now becomes much bigger and complex where ample scope for growth is available to them and becomes a source of motivation. They keep enjoying their work.

The above case is an example of Super complexity ñ a state of affairs where one is faced with alternative frameworks of interpretation through which to make sense of one's world and to act with a strong sense of purpose.

Conventional teaching leads students to 'surface' learning. 'Surface' learning is not necessarily ñ as some believe ñ devoid of meaning but is learning whose meaning is alien to the learner. 'Surface' learning drives students more toward memorizing. Out of three levels of learning, it is generally placed at the lowest rung and is generally known as 'Know what'. In the world of knowledge, 'Know why' is placed at the highest level and is directly related to research. Good teachers promote 'Deep' learning. It allows students to move from specifics to abstraction and then towards concepts. Students start exploring use of basics to chart out new paths for themselves.

Together teachers and students proactively make the institution a fertile ground for experimenting with their ideas. They expect the institution to give them some

freedom to take risks, use institutional resources, and expect the institution to have flexible processes, which provide some space to them. A broad syllabus, which is dynamic and contemporary and capable of absorbing changes as per new environmental demands, is the playing field for the senior faculty and administrators. Teachers and students continuously strive to create and add value so that the institute assumes the elite status.

# APPI-AHMEDABAD

MID ANNUAL SEMINAR ON  
O.S.P.E. IN RELEVANT TO PHYSIOLOGY  
ORGANISED BY APPI-AHMEDABAD ON 22ND OCTOMBER  
2008

TIME : 2-00 P.M. TO 5-00 P.M. AT CONFERENCE HALL, SMT.  
NHL. MUN. MEDICAL COLLEGE, AHMEDABAD-380 006  
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