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BHABHA ATOMIC RESEARCH CENTRE

Pulse

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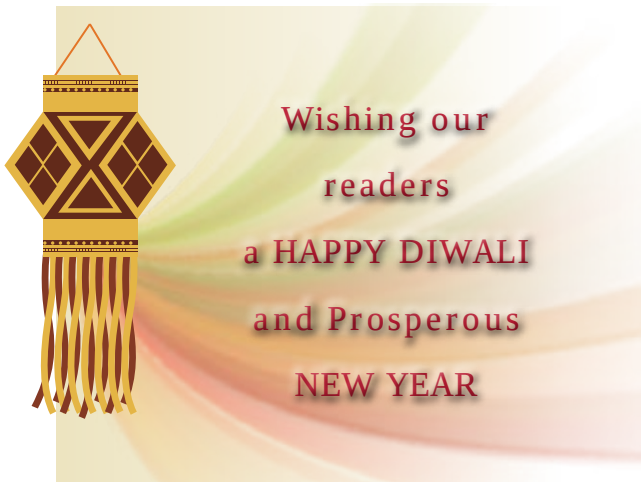
Inside



In Conversation

Dr. Bipin Batra,
Executive Director of National Board of Examinations (NBE)

The Editorial Team (ET) in a candid conversation with him (BB).

ET: *Congratulations, Dr. Batra, on being honoured with the 26th TP Jhunjhunwala National Excellence Award -2016, for your outstanding contribution to the field of higher medical education!*

National Board of Examinations was established in 1975 and became an autonomous body under Ministry of Health in 1982. What was the felt need at that time to start a separate body offering PG courses in medicine?

BB: At the outset, Thank You Dr. Nair. NBE was established in 1975, on the recommendations of an expert group, by the then Prime Minister of India. It was to primarily facilitate a common uniform benchmark for Post Graduate medical education in our country on the lines of the national qualification awarded by the American Boards in USA and Royal Colleges in UK.

The stream of NBE was identified to play an instrumental role in delivery of medical education and capacity building of specialists and sub-specialists within the existing health care infrastructure. This has also resulted in national integration with the federal structure of entire country brought under a single framework for health care services and education.

ET: *What is the present scope of National Board? How many courses are offered and how many hospitals are conducting these courses?*

BB: NBE conducts entrance examinations in four major streams viz DNB CET, DNB Post Diploma CET (PDCET), DNB CET-SS (Super Specialty), and Fellowship National Board (FNB) Entrance Test (NBE FET). The qualification awarded after passing the exit examination in any postgraduate degree course is "Diplomate of National Board" (DNB)and after successfully passing the 2 year post-doctoral fellowship course is the 'Fellow of National Board' (FNB).

The flagship DNB programme has 3907 seats for DNB Broad Specialty, 733 seats for DNB Super Specialty and 205 seats for FNB programme running in 469 accredited hospitals across the country. We also have a licensing examination for foreign graduates, FMGE.

ET: *What are the new Fellowship programmes run by you? What was the thought behind starting these courses?*

BB: Fellowship Programme of NBE was established with the following objectives:

- facilitate and encourage post-graduates aspiring to acquire skills and competencies in their area of interest.
- provide highest quality of specialty services comparable to any country in the world.
- recognise "Centre(s) of Excellence" and to identify experts in various sub-specialties
- create a forum for high level scientific interaction between expert groups.
- prevent brain drain of doctors who go abroad for further academic achievements

continued on pg 4....

Editorial

Medical Education in Turmoil

As with our previous issue of 'Pulse', we have wrestled to maintain a balance of generalised and specialised topics, addressing health and environmental concerns, providing news and medical data and educating through simple medical trivia.

In this issue we have also considered a topic that is of common interest and of which most certainly everyone has an opinion about- medical education and training.

Historically, India has been well recognised for its medical, surgical and public health practices and our ancient treatises on these topics are well recognised the world over. Our ancient universities were renowned for imparting knowledge in health care not just to the locals but to students of all lands.

Sadly we have not been able to retain our glory. Though India has the largest number of medical colleges as a nation (398) our doctor patient ration is much below the WHO and UN stipulated ratio of 1:1000. With the government unable to provide adequate number of medical colleges, privatisation is increasing, making medical education unaffordable to many meritorious aspirants.

Medical education is doubly burdened, it needs to educate well and wisely not just to benefit the student but also the students' future patients. Hence the criteria for imparting it have to be more meticulous than other streams. Unfortunately, this is not always the case.

Medical education today is plagued with problems of poor infrastructure, poor quality of teachers and institutes, improper training and teaching methodology and an outdated syllabus. Our system lays more emphasis on rote learning rather than skill development and inculcating a questioning mind.

There is great disparity in infrastructure across states and a vast urban – rural divide. There are no clear cut, uniform rules and regulations.

The Medical Council of India (MCI), which is the body responsible for regulating medical education in the country, has lately been mired in controversies. Its rules and regulation need to be made much more robust. However there is probably light at the end of the tunnel. All these issues are being addressed and it is proposed to revamp it with a 3 pronged approach- career, enterprise and ethics.

Clearly medical education and practice is undergoing monumental transition which will eventually lead to progress. In this issue, we have been be able to get the views and vision of Dr.Batra, Executive Director, NBE on this matter.

The editorial team is also indebted to all our colleagues who have contributed generously of their time and effort in sharing with us the excellent, distinctive and authentic work that they have been doing. The interplay between knowledge and experience has enabled the hospital to deliver focussed and purposeful healthcare.

This, we have strived to bring forth in our issue. We look forward to your feedback. We trust that you will find things to reflect, add on to or even reject. Any dialogue in these matters will only leave us in better stead than we presently are.

Dr. Nalini Bhat
Chief Editor- Pulse

Congratulations

to BARC Hospital Post Graduates

These students have successfully cleared their post-graduate DNB examinations in 2016

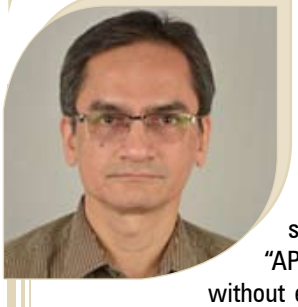
Dr. Ankita Singh
(ENT)

Dr. Srinivas Tejavath
(Anaesthesiology)

Dr. Pooja Mehta
(Psychiatry)

Dr.Siddharth Singh
(Family Medicine)

From HMD's Desk



Are we losing it?

We are being engulfed by the benefits of technology in our daily lives day by day. The other day, I ordered some sumptuous biryani, just typing on my Smartphone, on some "APP". We notice that, how hailing a cab has become so easy without even speaking a word. Haven't we all noticed that people all around are just bent down, looking at their smartphones, every working minute of their lives? As the lady of my house remarked one day "people are disconnected to stay connected".

Similarly, technology has also evolved into our diagnostics and therapy. Starting with CT, MRI, PET-CT, High resolution sonography, superior pathological tests, Receptor markers, Tele-medicine, key-hole surgery, Robotic surgery etc..... For every symptom, now there seems to be a test, all for the patients' advantage.

In the process, are we forgetting to look, hear or talk to our patients? Are we "treating" the human body as a machine to be investigated by other machines? Are we giving up the primary duty of a Physician of "healing" and surrendering to the machines for "treating"?

ARE WE LOSING IT? Should we not reinvent ourselves as "Healers", as someone who offers succour to diseased bodies in distressed souls? Let us bring back our healing touch for the patients. Let us retrieve the "lost" ground.

Dr. K. Mazumdar
Head, Medical Division, BARC Hospital

Augmentation of Blood Transfusion Services in Medical Division- The journey from Vein to Veins

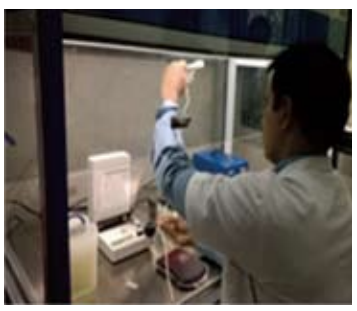
BARC Hospital had obtained license to prepare and store Whole Human Blood IP in 1996. However to keep abreast with advances in transfusion medicine, component therapy was needed; which is desirable for the following reasons;

1. Separation of blood into components allows optimal survival of each constituent. Components have tightly regulated preparation and storage requirements.
2. Component preparation allows rational use of blood by transfusing only specific blood component that the patient requires and avoiding the unnecessary component.

Centrifugation of whole blood in refrigerated centrifuge.

3. Several patients can be treated with blood from one donor, giving optimal use of every unit of donated blood. In other words, whole blood from one vein of a donor is delivered as components into veins of several recipients.

The statutory requirements for component preparation with regard to space, equipment, laboratory practices and trained personnel were all fulfilled by BARC Hospital Blood Bank. The license was granted on 03.08.2016 to prepare and store all Blood Components namely: i) Concentrated Human Red Blood Corpuscles IP ii) Fresh Frozen Plasma B.P iii) Platelet Concentrate IP iv) Cryoprecipitated Antihaemophilic Factor IP. v) Cryo Poor Plasma (Factor deficient plasma) USP and vi) Single Donor Plasma USP.



Separation of packed red cells and plasma in the laminar flow.

The transfusion of Concentrated Human Red Blood Corpuscles IP to an ICCU patient on 23.08.2016 was another milestone in patient care in BARC Hospital. Whole blood transfusion has now been totally phased out by use of the above appropriate blood components. The goal is to ensure blood

Separation of platelets from the plasma in the laminar flow.

products that are safe, pure, potent and adequate to meet patients' needs.

Sugar Tax will Positively Impact People's Health

Dr. Rashida Badar, Deonar East Dispensary

The last quarter of the 20th century, has seen a huge nutritional transition, as a result of interplay of economic, demographic, environmental, cultural & political changes in society. We have moved from EAT MORE in the 1900s to EAT LESS in 1990s. A couple of generations ago, food was scarce and mal/ under nutrition was the big threat to health and the principle cause of death & disability. The goal of health officials, nutritionists and the food industry was to encourage people to eat more, without any restrictions, all kinds of food.

VIEW

The changing food habits, increased food production and the changing economy, resulted in over -nutrition & we became a society of the fat,which resulted in obesity & related chronic diseases. Obesity related diseases are the number one killer& are escalating health care expenses, world over.

In many developing countries affected by rapid globalization, industrialization, and urbanization, obesity and diet-related chronic diseases such as diabetes, cardiovascular disease & some Cancers are emerging as important health concerns. Changing patterns of food consumption such as increased carbohydrates, particularly in the form of soda & other foods containing high fructose syrup, are found to be main contributors to obesity. Sugar intake (sucrose in particular) has an important role in the current diabetes epidemic .This bitter truth about this sweet passion is proved by close observation that obesity was seen initially in the wealthy, who were the only ones who could afford sugar. Also metabolic diseases were first documented in countries where sugar first became available to the public (England, France & Germany). Now we are a Pavlovian population drawn to the taste of sweet like bees to honey.

There is an urgent need we wake up and over -haul our food choices. Self-restraining and large scale health education programs get thwarted by food barons who are playing the "pass the parcel " game by stressing that obesity is an exclusively genetic problem, to be cured rather than prevented.

Personal responsibilities & freedom of choice are nice ideas but when it comes to actual consumer decision making, people are influenced by prices & by advertisements. Increasing the price & decreasing advertisement exposure will decrease consumption, more than education ever will. It may not completely solve the problem, but it will at least address the problem. It will work as a comprehensive approach to poor diets & its consequences on health.

To meet the demands for corporate growth, food companies lobby government agencies, forge alliance with health professionals, market directly to children, sell junk food as health food, and get laws passed that favor"corporate health" over human health. As part of normal course of doing business the food industry changes society in ways that encourage us to eat more, more often and at more places. Against such efforts,& billions of dollars in marketing, personal responsibility doesn't stand a chance. If the food environment makes it difficult to eat healthy, public health must focus on political strategy to change the society.

The only solution to kill the demon appears to be imposing a sugar tax, sugar laden beverages in particular, which are found to be the single largest contributor to obesity (49%). Industry focused tax acts as a kind of public health campaign. People understand that product specific taxes are levied only when a substance is causing great deal of harm with no end in sight. This understanding can contribute to major cultural shift in our perception of healthy & unhealthy food.

It is estimated that the tax would prevent 2.4 million diabetes person-years, 95,000 coronary heart events, 8,000 strokes, and 26,000 premature deaths, and can reduce the adverse health and cost burdens of obesity, diabetes, and cardiovascular diseases.

They say sugar taxes are regressive, but so are diabetes & obesity. Sugar tax will be regressive in financial terms, but it is progressive health-wise. It is expensive to be healthy, but it is even more expensive to be unhealthy. In view of this I strongly recommend that imposing a sugar tax is highly warranted.

Dr. Harry Ralte, Kharghar Dispensary

An April 2016 news report in the Times of India states that the Centre is mulling over introducing a "Sugar tax" to combat certain medical conditions.

Just as Government and religion should be separate-similarly Government (Over) interference in Health and Medicine should be minimal. India is set to become the Diabetes capital of the world. In addition, the rise in obesity and the metabolic syndrome is also a truth today. These facts may have led some to dream up this notion of a Sugar tax. UK has introduced this tax on Sugar drinks a couple of months ago, scheduled to be implemented in 2018, with public support, with the aim of reducing Childhood Obesity.

COUNTER VIEW

France, Finland, Mexico and Hungary already tax sugary drinks.

Whether an idea is right or wrong can be judged by its consequences. Never by its intention. So let us suppose a Sugar tax is imposed, and please recall that only the Government can impose tax on citizens. Specifically, some reasons that have been put forward, on why it is unlikely to work, are as follows:-

1. Fruit juices and milk products are excluded. Hot chocolates, Milk shakes, Coffee and Yoghurt based drinks, which are some of the most sugary drinks, escape the tax.
2. The tax will hit the poorest hardest. Consumption taxes always do this.
3. It could raise costs all around. To cover costs, a soft drink company could raise prices on their entire range of products.
4. People will switch to other sugary products. Only 17% of added sugar consumption comes from sugary drinks. The tax does nothing to change underlying behaviours which lead people to seek out sugar in their diet.
5. Soft drinks consumption is actually falling. But confectionary purchases have actually risen.
6. Similar taxes have not worked abroad. In fact, such a tax has been successfully challenged in Scandinavia.

Now most of our population do not have a DAE like medical system, and they have to pay for what they get, at market prices- which includes consultation, investigation and treatment. Poor families dread to visit the Municipal Hospitals and would rather spend their meagre savings on private Family Doctors and Hospitals, if they can afford the same, due to reasons known to all. Now if certain common foods become expensive, such a family will probably have to cut down on medical expenses, to buy these. More so, because a hike in the price of sugar based drinks will not leave untouched other food items.

Diabetes, Obesity are conditions caused by multiple factors, not just sugar intake. Common-sense ideas like increasing one's physical activity, watching what one eats and if one has Diabetes- taking medicines on time, will help. There is no magical bullet to stem the gradual rise in Obesity-related health issues. As Doctors, Nurses, Dieticians, Pharmacists and health professionals, we have to educate persons at risk individually and in groups. It is hard work, but it is the only way.

I believe that the basic function of Governments is to maintain law and order. Increasingly, other fields like industry and healthcare are being dictated by the powers that be.

Here, I recall a proverb: "The road to hell is paved with good intentions", said Saint Bernard of Clairvaux.

Wrong doings or evil actions are often masked by good intentions, or even that good intentions, when acted upon, may have unforeseen bad consequences.

Executive orders on what to read, what to see, what to eat do not cause enlightenment. Obesity, Diabetes etc. did not come about by the Government telling us what to eat or drink. It certainly will not go away by a Sugar tax.

Dr. Pratibha Toal, Dept. of Anaesthesiology successfully completed the Satara Hill Ultra Half Marathon, Sept. 2016.

IInd Prize

Theme: Clinical Applications of Lasers; 33rd DAE Safety & Occupational Health meet, July 2016

Dr. Julli Bajaj, Dept. of Dentistry

Research Publications from the Medical Division:

- A different fibre-optic device for double lumen tube position confirmation: Bhirud PH, Toal PV. Indian J Anaesth 2016; 60:298.
- ENT considerations in biotinidase deficiency: Bhat N, Dhotre R, Tawade H;Astrocyte 2015;2:101-2.
- Is it always an amniotic band?: Prabhu S,Nayak M,Mishra N, Jadhav V.; Journal of Post-graduate Obstetrics and Gynaecology; Vol. 3, February 2016. Online indexed journal.
- Pregnancy tumour: Jadhav V,Misri A, Prabhu S, Mishra N, Savani G; Scholar Journal of Medical case report, Vol. 4, January 2016, Page 11-13.
- Managment of Ameloblastoma arising from dentigerous cyst: Julli Bajaj; Journal of IDA (Indian Dental Association) Clinical Dentistry, Vol. IX, Issue 3, March 2015, page-32-37.

continued from pg 1

In conversation with Dr. Bipin Batra...

- improve and promote quality services in various fields in the existing medical institutions.
- promote medical research and innovations adaptable to the socio-economic status and culture of our country.
- conduct evaluation by appropriate mechanism for assessment of training programme examination before certification as specialist by the NBE.

At present Fellowship programme is offered in 17 disciplines and considering the need for expansion, it is an ongoing process.

During the current year Fellowship in G.I. Oncology, Liver Transplant and Pediatric Nephrology will be launched.

ET: *In your view, what ails medical education in our country today? What steps need to be taken to improve it?*

BB: The practice of medicine and pattern of medical education are closely interlinked to each other. Medical education in our country has failed to keep pace with the current day needs of medical profession and society.

Despite being one of the largest medical education networks in the world, we lack competency-based framework of education. Over the years the medical colleges have consistently failed to produce graduates and specialists with cutting edge professionalism.

Outdated recognition mechanisms, lack of dynamic curriculum and educational interventions and absence of robust faculty development initiatives have added to the current situation.

The equity of access to medical education is severely compromised; the elements of quality and excellence are struggling to find a place in educational delivery.

We need to work at institutional as well as instructional changes to improve the medical education. To begin, we need to cleanse the system by making merit, the sole criterion for entry to medical colleges.

We need to take further steps to reduce the cost of access to education, promote excellence by offering scholarships, reforming curriculum and standardizing assessment process. Assessment drives learning.

The CME and continuous professional development are areas, which have slipped totally into commercial hands. We need a framework for mandatory re-certification of medical professionals and institutional systems for CME's.

ET: *The DNB exams and University exams are conducted differently. How can we standardize teaching methods and examinations? Should teachers and examiners undergo periodic courses?*

BB: We need to bring in innovation and entrepreneurship in teaching methods and examinations. We can benefit from the large number of medical institutions in the country only if we invest in innovation and promote excellence.

While it is essential to have a single robust education system, we need to promote innovation in teaching in a manner that the faculty and heads of institutions are encouraged to introduce any new teaching methodology and bring in valuable experience from other institutions.

> **"We lack a competency-based frame work of education."**
>
> **"Only 39% of MD/MS qualified doctors are able to clear DNB exams in the same subject - a clear indicator of the higher standard of assessment"**
>
> ***- Dr. Bipin Batra***

Faculty Development programmes for teachers as well as examiners is absolutely essential and we need to create an institutional mechanism for the same.

ET: *Sir, could you share your thoughts on how this could be done? Can NBE play a role?*

BB: When we look at most teaching professions, be it engineering or other graduation courses, there are respective agencies responsible for recruitment, training and promotion of teachers. Unfortunately, in medical education other than a skeletal framework with 1 regulation and couple of circulars by MCI, we do not have a mechanism for faculty development. Today we have 55,000-60,000 medical teachers in our country.

We have already sent a proposal to GOI to form a committee to evolve a dedicated, centralized mechanism to recruit, train and promote medical teachers.

ET: *NBE had introduced Gyanvani and DVDs for PG training. Any new developments in this area?*

BB: A model of learning based on Radio/TV etc has become outdated. So we have stopped Gyanvani. We have recently introduced E-learning courses in Cardiology and General Paediatrics. This year we have planned an e-course on Research Methodology. We also publish a quarterly peer-reviewed medical journal 'Astrocyte' which is available online.

ET: *The pass percentage of students in some specialties is very low especially when compared to MD/MS courses. What is the reason? How can we improve it?*

BB: The pass percentage of DNB candidates has been steadily increasing due to myriad of interventions by NBE; for eg: introduction of centralised counseling, standardization of examinations, structured accreditation criteria etc.

While in MD/MS courses the emphasis is to clear the candidates without strict enforcement of examination guidelines, in DNB merit and excellence are the key parameters for qualifying competency based exit examination.

In fact only 39% of MD/MS qualified doctors are able to clear DNB exams in the same subject. This is a clear indicator of the higher standards of assessment based exclusively on merit

ET: *DNB program is very structured, comprehensive and of high standard. Yet degree of DNB is often not considered on par with MD/MS for teaching faculty posts. Can NBE help address this discrepancy?*

BB: The equivalence of MD /MS and DNB qualifications for teaching appointments in medical colleges is governed by the TEQ Regulations (Teachers Eligibility Qualification) and the last TEQ Regulations dated June 2012 address this situation appropriately.

However, there are vested interests that seize any opportunity to compromise the standing of DNB candidate vis-à-vis MD/MS candidate. By doing so they can easily place a medical college in a vulnerable position during inspection, for faculty deficiency.

NBE has time and again brought these cases to the notice of the Ministry of Health, Govt. of India and the ministry has clearly issued directions to MCI not to indulge in such practices. The Standing Committee of Parliament in its 92nd report has touched upon this issue and has made its recommendations as well.

ET: *What is your opinion on designating teachers of DNB students as Professor, AP and Lecturer?*

BB: Two years back, we decided to create a pool of Professors by inviting nominations of teachers meeting certain eligibility criteria. Today, we have 150 teachers designated as Professors and we plan to expand this pool to 300. We have not yet taken a decision on the lower posts.

ET: *What are your future plans for NBE? Any plans to start MBBS courses?*

BB: We shall be implementing the NEET-PG test for 2017 admissions for both Medical as well as Dental streams. There are no plans to enter into the MBBS course at this stage. The DNB programmes are being upscaled in partnership with state hospitals and institutions.

ET: *What is your message to DNB teachers and PG students?*

BB: The DNB programme is India's answer to excellence in medical education at the Global platform. The DNB programme is a shining star representing honest, sincere, merit based medical education system. DNB is the powerful tool to address cost and equity of access issues in medical education. We should all collaborate and deliver our best to keep striving for merit and excellence.

ET: *You are a doctorate in radio-diagnosis with a master's degree in public health. Do you also practice clinical medicine?*

BB: My current schedule does not permit me to practice clinical medicine. However, I remain active with academic medicine and engage in continuous professional development in my areas of training and expertise.

Paper presentations:

- Is it always an Amniotic Band? : **Dr.Madhusmita Nayak.** Annual Conference of Mumbai Obstetrics and Gynaecology Society at Mumbai in February 2016.
- Pregnancy tumour: **Dr.Vaishali Jadhav**. 59th All India Congress in Obstetrics and Gynaecology, (AICOG 2016) at Agra in January 2016.
- Spectrum of neoplastic mucosal lesions of upper aerodigestive tract- A retospective study: **Dr Neha Nalwaya**, Dr. Uma Chaturvedi, Dr. Susan Cherian, Dr. Raji Naidu,Dr Kharolkar Vivek, Dr Archana Panage at DY Patil University, School of Medicine, Navi Mumbai on 24th September, 2016 at MAPCON 2016.
- Cytomorphology of Salivary Gland Lesions with histological and clinical corelation in a tertiary care hospital: **Dr.Rupali Gadkari**, Dr. Susan Cherian,Dr. Raji Naidu, Dr.Uma Chaturvedi, Dr. Archana Panage, Dr. Vivek Kharolkar at MAPCON, DY Patil University, School of Medicine, Navi Mumbai on 24th September,2016.
- **Dr. Shobha Nair,** Dept. of Psychiatry was invited as faculty for a MMC accredited CME of Indian Psychiatric Society - West Zone, held at Alibaug in April 2016.The topic was 'Testamentary Capacity'.

Anagrams-Test with words

Prepared by Dr.Nalini Bhat, Dept. of ENT, BARC Hospital

How good are your letter –wrangling skills?
Unscramble these 'medical conditions' and have fun.

1. Her tiny P nose ..... (12)
2. Bids a tee ..... (8)
3. Dozens her flour ..... (6, 8)
4. Panic is tepid ..... (12)
5. Spells ably ..... (5,5)
6. Pet is habit ..... (8,1)
7. Win fuels ..... (5,3)
8. My coco so shiny ..... (13)
9. Aa a poetical ear ..... (8, 6)
10. In twelve reefs ..... (4,4,5)
11. Zero her pests ..... (6,6)
12. Terse instigator ..... (15)

Population Dynamics of Health Care Beneficiaries of DAE in Mumbai

Prashant Bhandarkar, Priti Patil, Dept. of Statistics, BARC Hospital

Comprehensive healthcare is provided to employees of Department of Atomic Energy (DAE) and their families through Medical Division of BARC (Bhabha Atomic Research Center) in Mumbai. Total registrations with the health care system in Mumbai are around 100 thousand. It will not be wrong to say that this population is a self-selected community. Being urban, educated and economically stable, characteristics of the population covered by CHSS is different than the rest of our country's population.

This article reviews the demographic change observed in this population between two different points of time, year 1994 and 2014. It also estimates the total fertility rate, which is one of the main indicators established in population theory[1].

Medical Division runs a fully computerized Hospital Information System (HIS). All the demographic details of health beneficiaries are registered at the time of enrollment in the scheme, whereas clinical details are regularly updated during their visits to dispensary or hospital. Data was used based on HIS for current year while for 1994 printed report was accessed. Based on unique identity number of beneficiaries, analysis was done using SPSS 20 (SPSS Inc., Chicago, IL, USA).

$$\text{Age Specific Fertility Rate (ASFR)} = \frac{(\text{Number of live births to mothers of specified age group})_{20\text{-}25,\ 26\text{-}30 \ldots\ 46\text{-}50}}{(\text{Mid-year female population in specified age group})_{20\text{-}25,\ 26\text{-}30 \ldots\ 46\text{-}50}} \times 1000$$

Total fertility rate (TFR) = 5 x ASFR / 1000

ASFR throws light on some important aspects of population growth in any community. It also reveals information about the childbearing behavior of the population. TFR is used to compare the reproductive performances of any two groups of women. It also provides the average completed family size. It is a summary measure of fertility, defined as the number of children which a woman in a hypothetical cohort would bear during her lifetime if she were to bear children throughout her reproductive life at the rates specified by the ASFR.

Replacement level fertility is the average number of children born per woman at which a population exactly replaces itself from one generation to the next, without migration. This rate is roughly 2.1 children per woman for most countries, although it may modestly vary with mortality rates.

TFR < 2.1 is below replacement level fertility and TFR< 1.3 indicates very low fertility.

Our study population, which is a self-selected community, showed significant changes in the population distribution over two points of time (*figure1*). Decadal comparison shows a 13% growth in overall population between years 1995 to 2014. Geriatric concentration in the population is found to be increased with respective changes in the population pyramid. The increase in geriatric proportion may be due to the cumulative prime beneficiaries of higher age groups.

Compared to national population pyramid of a triangular shape (relatively flat at base), community population

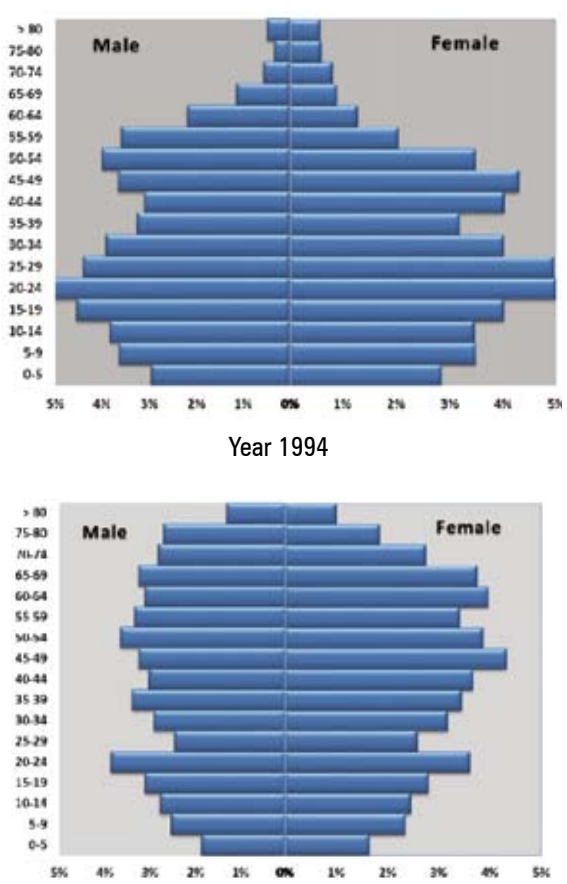


Figure 1: Age Sex wise distribution of CHSS community

pyramid was found to be barrel shape with narrowing at ends. Current year pyramid shape is appearing like a pyramid of developed country (Sweden 2010) (Figure 2).

Child bearing capacity is seen to be reduced.

For the year 2012, based on demographic details of our study population TFR was recorded as 1.41 which is well below the replacement level of fertility. Many developed countries are having TFR below replacement level fertility. Japan has TFR of 1.4 for year 2015 while for India it is shown as 2.48[2]. World is growing with overall TFR of 2.5[3].

The statement, "Development is the best contraceptive" made by Dr. Karan Singh in World Population Conference at Bucharest in 1974 predicted the effect of development with population growth[4]. Comparison of population growth between developed and developing countries shows this. This finding is replicated in our community. Below replacement level fertility is the result of higher education level, especially female higher education which leads to delayed marital union and delayed parities.

With an advancement in medical technology, life expectancy around the world has increased in the past century and this rise is expected to continue. However, quality of life is affected with higher life expectancy. With low fertility and mortality, in any community ageing grows and it is accompanied by age related disease burden, physical, socio-economical and financial dependencies.

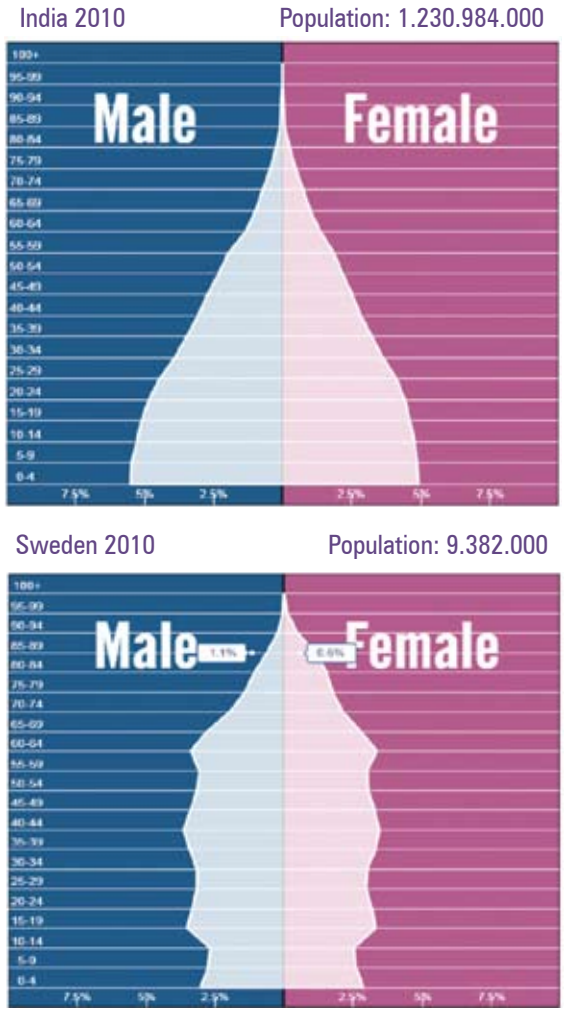


Figure 2: Age Sex distribution, India and Sweden (Source: http://populationpyramid.net)

As per Census 2011, India with 8.4% of elderly population is tagged as an ageing nation as it is home to 13% of the world's geriatric population. Awareness about ageing related precautions need to spread for smoother and healthier ageing.

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1. www.un.org/esa/sustdev/natlinfo/indicators/methodology_sheets/demographics/total_fertility_rate.pdf
2. www.cia.gov/library/rankorderThe World Factbook, World ranking of countries by TFR
3. www.blogs.worldbank.org/opendata/betwen-1960-and-2012-the-world-average-fertility-rate-halved-to-2.5-birth-per-woman
4. www.who.int/bulletin/volumes/86/3/07-045658/en/

NEWS

On the occasion of 'World Blood Donor Day' on 14th June 2016, a felicitation programme for donors was arranged by BARC Hospital Blood Bank. A talk on "Awareness about Voluntary Blood Donation" was presented by Pathologist Dr. Prachi Gaddam. There was an interactive session where queries and apprehensions about blood donation were answered by the Blood Bank Staff. Literature about Safe Voluntary Blood Donation and rationale of blood transfusion was distributed to the audience. Regular blood donors of BARC Hospital Blood Bank who have donated whenever there was a need were felicitated. Many employees enthusiastically registered with Blood Bank as `Voluntary Blood Donor'.

Case Report

Gluten - sensitive Enteropathy: – A Case Report

Dr. Debjani Pal, Mandala Dispensary

Introduction:

Gluten-sensitive enteropathy (GSE) or celiac disease is common in India, prevalence rate being 1 in 100. It is an autoimmune inflammatory disease of the small intestine that is precipitated by the ingestion of gluten, a component of wheat protein, in genetically susceptible persons.

Case Report:

Described below is a case as encountered during day- to- day clinical practice.

In August 2014, a 67 year old male individual, not a known case of any major medical co morbidity presented with recurrent episodic abdominal pain since 2011. The pain though not severe was often colicky, present in peri -umbilical region, non-migratory and non radiating. Patient also reported with dyspepsia, hyperacidity and occasional non projectile vomiting. Patient had been treated on various occasions for the same with no significant relief. In July 2012, patient had been admitted with chronic abdominal pain, 2 episodes of non- bilious, non-projectile vomiting which occurred about an hour after food intake and a recent weight loss of about 5 kgs. He was then investigated with CBC, biochemical tests, Thyroid function tests, RA tests, USG abdomen and Gastroscopy. A diagnosis of anaemia with gastritis was made and treatment was initiated but his symptoms persisted.

On his present visit, he had no hematemesis, malena, diarrhoea or constipation. There were no other co morbid conditions or allergies.

In 1983, he had an episode of hematemesis due to a duodenal ulcer and had needed blood transfusion.

On examination his general condition was fair, vitals stable with no oedema or lymphadenopathy. He had mild pallor. Abdomen was soft and not tender. No mass or hepatosplenomegaly felt. Abdominal sounds were heard.

Investigations: Hemoglobin was 8.9g% with low MCV. Peripheral smear showed microcytosis, hypochromasia and presence of target cells. There was also leucopenia Serum Iron, ferritin, folic acid and Vitamin B12 levels were low. Thyroid function tests were normal and viral markers were negative. ANA was strongly positive with antibody titers – anti SSA Ab, Anti thyroglobulin Ab, anti TPO were raised. Tissue transglutaminase tTG was also positive – 55 AU/ml(n - <8 AU/ml) suggestive of an autoimmune disorder – probably Coeliac disease.

USG abdomen was normal. Endoscopy showed normal oesophagus and stomach

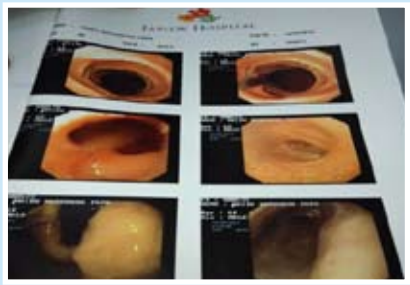

Fig. 1: Endoscopy normal oesophagus and stomach but scalloped mucosa in 2nd part of duodenum.

but scalloped mucosa in 2nd part of duodenum. (Fig 1) Multiple Biopsies from suspicious areas revealed variable villous atrophy with significant amount of intraepithelial lymphocytosis confirming the diagnosis of gluten enteropathy.

Discussion: The inflammatory process of the small intestine in coeliac disease is mediated by T cells, resulting in the characteristic villous flattening, crypt hyperplasia and increased intra epithelial lymphocytes. (Fig 2A and 2B)

Fig. 2 (A) Fig. 2 (B)

The inflammatory process of the small intestine in coeliac disease is mediated by T cells, resulting in the characteristic villous flattening, crypt hyperplasia and increased intra epithelial lymphocytes.

Onset of symptoms may be early or late and may even be silent (minimal or no symptoms). Diagnosing the condition requires a high index of suspicion. Serological testing should be considered in patients with a high genetic risk and unexplained symptoms with probably other autoimmune disorders. These is a strong association of GSE with auto- immune disorders – mainly type 1 diabetes, autoimmune thyroiditis, alopecia aerata and herpetiform dermatitis. This maybe either because both the risk of gluten sensitivity and auto-immune diseases increases with age. Genetic studies indicate that loci of coeliac disease maybe shared by linkages of other auto –immune diseases. However, these linkages maybe co-incidental. Our patient had raised titers of SSA and thyroid antibodies but had no specific symptoms related to Sjogrens and his thyroid hormones are normal so he has been kept on regular follow up and monitoring.

GSE is also associated with anaemia, multiple vitamin deficiencies, and conditions caused by these deficiencies, due to malabsorbtion of nutrients from a damaged, atrophied gut mucosa.

The only effective treatment is lifelong gluten free diet. The person should avoid wheat, rye, barley completely. Rice, soyabean, potato and cornflour are safe. Strict adherence to avoiding gluten allows the intestine to heal resulting in resolution of symtoms in most cases. No medication exists that will prevent damage of the gut when gluten is ingested.

In case symptoms persists after gluten avoidance, then steroids have been used with good results.

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In-House Research

Cervical Priming Prior to First Trimester Suction Evacuation: Comparative Study

Dr. Santoshi Prabhu, Dr.Veena Aurangabadwalla, Dr. Amrita Misri, Dept. of Obstetrics & Gynaecology, BARC Hospital

Background: Suction evacuation is widely used for elective termination of pregnancy in first trimester. Mechanical cervical dilatation during this procedure is probably the most critical step. Difficult cervical dilatation may cause incomplete evacuation, cervical laceration, and uterine perforation. Prior cervical priming with pharmacological agents like prostaglandin derivatives although not free from side effects, makes the procedure easier with reduced overall complication rate, and hence recommended in several guidelines.

Aim: Two prostaglandin derivatives, sublingual Misoprostol (15-deoxy-16hydroxy16-methylprostaglandinE1) with intramuscular Carboprost (15-methylProstaglandinF2α.) were compared for cervical priming prior to suction evacuation in first trimester termination of pregnancy.

Settings And Design: Prospective study was conducted at Department of Obstetrics and Gynaecology, BARC Hospital over the period of 2 years (September 2008 to September 2010).

Methods: Eighty women requesting pregnancy termination from 6th to12th weeks gestation were randomized in two groups. Two hours prior to suction evacuation, first group (N=40) received 400 μg of sublingual Misoprostol, while second group (N=40) received 250μg of intramuscular injection Carboprost. Outcomes of both groups were recorded in terms of baseline cervical dilatation, immediate complications, drug induced side effects and patient acceptability by questionnaire.

Results: Mean baseline cervical dilatation prior to suction evacuation was 7.645+/-1.20mm in the Misoprostol group and 7.724+/-0.64mm in the Carboprost group (P>0.05). 42.5% women in Misoprostol group had cervical dilatation >8mm, compared to 17.5% in Carboprost group (P-0.004). The side effects including nausea, vomiting and abdominal cramps were more in Carboprost group as compared to Misoprostol group. No patient had diarrhea in Misoprostol group as against 32.5% in Carboprost group (P<0.0001). There were no complications like incomplete evacuation, cervical lacerations or uterine perforation noted in either group.

Conclusion: Sublingual Misoprostol was found to be more effective with minimal side effects as compared to intramuscular Carboprost.

Our Experience: Till 2014, Total 616 patients received 2 tabs. Sublingual Misoprostol 2 hours prior to surgical evacuation with results consistent with study. Additionally, it was used safely in cases with bronchial asthma where Carboprost is contraindicated.

To cite the Full text article:

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Answers of Anagram

1. Hypertension
2. Diabetes
3. Frozen shoulder
4. Appendicitis
5. Bell's Palsy
6. Hepatitis B
7. Swine Flu
8. Onychomycosis
9. Alopecia aerata
10. West Nile fever
11. Herpes Zoster
12. Gastroenteritis

Patient Education:

Digital Radiological Advances in Dentistry

Dr. Rajesh Dashaputra, Dept. of Dentistry, BARC Hospital

Computers are being increasingly used in medicine and dentistry and have become more user friendly, especially with the invention of software with the Graphic User Interface (GUI). This generates graphical icons and picture windows with dialog boxes through which the user can easily give the necessary commands. Working with GUI system can allow access not only to video images taken from video imaging systems and cameras but also to digital X-ray images and photographs which form a major part of clinical case records called PACS (Picture Archival & communication Systems).

These are not only useful in storage of patients' imaging data but also in linking patient information, in education, in treatment planning and financial records management.

Dental treatment has two major aims:

- Diagnose, fight and eradicate the diseases of teeth as well as gums
- Restore the damage done and rehabilitate the dentition to provide better function and improve quality of life for the patient.

Both these aspects need meticulous planning of treatments and time for its execution which, many a times, thoroughly tests the patience of the doctor and patients alike.

Role of new technologies with Digital Radiology

Diagnostic radiology in dentistry plays an extremely important role. Various new technologies developed with digital radiology as well as photography have taken the field by storm. Their utility for different stages in treatment have revolutionised the diagnostic and treatment planning processes.

Radiological techniques

X- Ray: The commonest diagnostic tool until two decades ago was the dental X-ray film. It was taken with a small covered film packet kept inside mouth behind the tooth to be examined. The X-ray source tube was kept outside and aimed to shoot the tooth. These had to be developed just like the photographs in a dark room. More than 10 films were required to have a full mouth survey with relatively high dose of radiation.

Intra- oral Radiovisiography:

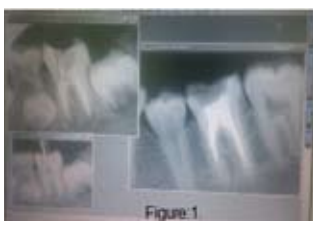


Fig. 1: Intra- oral Radiovisiography

An expensive but convenient modern technique is in use today which has replaced the older dental film X-rays. It generates radiological images on a digital receptor instead of an X-ray film. These images are transferred to the computer and displayed directly on the monitor for viewing.

Advantages of this system:

- The images can be magnified or zoomed into and contrast adjustment can produce clearer images.
- Images can be stored for eternity allowing comparision with older as well as other records related to the patient for future reference.
- It gives opportunity to view clear magnified details of better diagnostic value.
- It works as a procedural aid during root canal therapies as well as implant surgeries with most real time views. (Fig 1-RVG showing different stages of root canal treatment)
- This system of imaging poses lesser radiation exposure to the patient than normal X-ray filming technique.

Orthopantomogram (OPG) systems:

OPG allows larger area scans. Though it essentially gives 2D pictures it can give fair amount of overview of jaws,

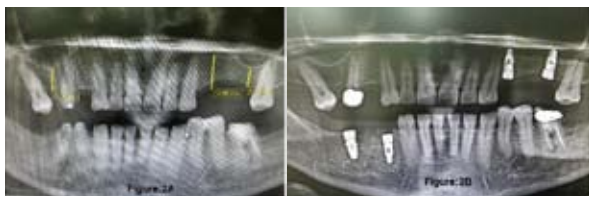


Fig 2A: the full arch and calibrations for bone height measurements (yellow) for implantology)

Fig 2B: Implants placed in the calibrated positions

the bone levels, condition of teeth etc and also allow measurements with calibrated length to get valuable idea for planning (Fig 2A showing the full arch and calibrations for bone height measurements(yellow) for implantology). It is also an effective tool to archive pre and post procedure radiological records. (Fig 2B shows implants placed in the calibrated positions). It, however, does not provide information on the width of the jawbone.

Cone Beam computerised tomography (CBCT) or Cone Beam volumetric tomography (CBVT):

Fig. 3: The machine, similar to the OPG, has a head positioner with the arm holding the active moving component which rotates around the head.

The CBCT or CBVT is a true 3D rendering of the subject. It allows the viewing with undistorted slices for accurate study. The machine, similar to the OPG, has a head positioner with the arm holding the active moving component which rotates around the head (Fig 3). It has the source as well as the capturing sensor reciprocating and renders a unique view with slices as thin as 0.1mm

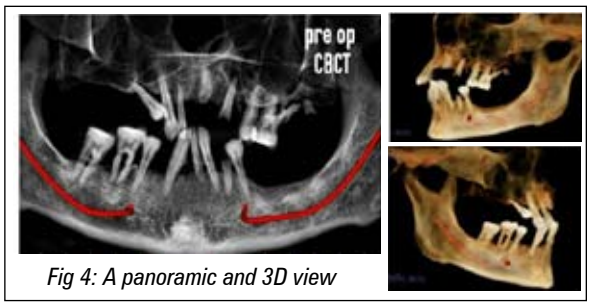


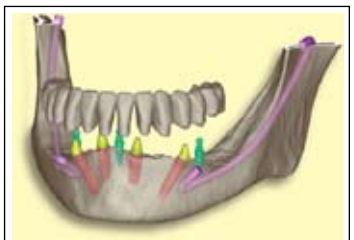
Fig 4: A panoramic and 3D view

apart. With its associated software programs it can allow slice view, panoramic view and 3D view rendering of the whole skull to compare with real view. (Fig 4 showing a panoramic and 3D view)

This technology is unparalleled to any of the medical CT scan system and with 10 times low radiation exposure. This technology can be further explored to do virtual planning of treatments before any procedure. The plan can be demonstrated to the patient and options can be offered before treatment.

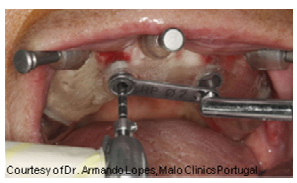
Virtual guided surgeries for implant positioning:

Planning a surgery: CBCT is also used for virtual planning of implant surgeries. A special denture template with radiopaque artificial teeth is worn by the patient and a scan is taken. This scan gives a virtual image which shows the expected position of teeth w.r.t to the jaw. Then, using software the best position for placing implants are determined. This data can be shown to patient and stored for executing the procedure.

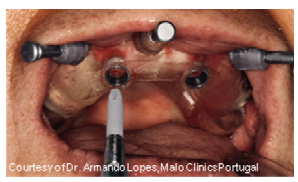


(Fig 5: The position of virtual teeth and also virtual implants)

Executing the surgery: The saved data is used to prepare a surgical template. Special software can lock the virtual positions and create guide rings in alignment with the plastic autoclavable plate.



(Fig 6 A Surgical stent)



(Fig 6 B: Surgical stent in use during surgery)

This guided approach has many advantages.

- It helps in placement of implants accurately with less human errors.
- Minimally invasive methods can be adopted without even incising gum flaps.
- Complex surgeries for rehabilitation can be performed with improved outcomes.

A Tribute

Dr. Rohit Raghunath Pendse, Senior physician, 58 years, passed away on February 22, 2016 at BARC Hospital Mumbai due to chronic medical ailment. He is survived by his parents and a sister. Dr. Pendse was born on November 3, 1958. He hailed from Nagpur and earned his MBBS and post-graduation degree in General Medicine (MD) from GMC, Nagpur.

He worked at GMC in ICCU and AKD unit till he joined BARC Hospital, as an ICCU RMO on August 1, 1985. Later he was appointed as a Consultant physician and worked in Medical unit in different capacities for 31 years. He was a member of various interview and promotion committees at BARC Hospital. Dr. Pendse was a DNB teacher and had mentored many students. He was a warm and popular personality amongst his patients. He was an avid reader with good command on Marathi literature. Carom was his favorite game and he had a special interest in cricket.

He will be always remembered as a compassionate, caring physician with excellent clinical acumen by his patients and as a witty doctor with a good sense of humor by all his colleagues. May his soul rest in peace.

In-house Medical Data

Trauma Statistics from BARC Hospital

Dr. Ravindra Chauhan, Dr. Sanket Pajai, Dr. Shrividya Chellam
Casualty, BARC Hospital

Trauma, a Greek word, literally means wound. It can be psychological or physical. Psychological trauma is a disturbing experience that causes severe anxiety and emotional distress leading to great suffering or disruptions in personal or social life. Physical trauma is always some sort of a bodily injury or shock which commonly occurs due to road traffic accidents, falls, burns, drowning, assault, self-inflicted wounds or a combination of several factors.

Trauma injuries may be minor (contusions, abrasions, lacerations, scalds, small burns etc) or severe enough to cause death. Globally, 9% of all deaths are caused by injuries; amongst the types of injuries, poly-trauma constitutes 40%, head injuries 30%, chest trauma 20%, abdominal trauma 10% and trauma to extremities 2%.The leading cause of traumatic deaths are due to road traffic accidents (RTA) and falls. RTA are increasing at annual rate of 3% and 22.8% of all trauma is traffic /transport related. Most vulnerable age group for RTAs is 15-49 years. In India, 4 lakh deaths are due to trauma every year i.e. approximately 1 death in every 1 minute. In all types of injuries, males outnumber females. In paediatric age group (0-15 years) fall is the major cause of injury or death. In the elderly population, even trivial trauma is important as it may cause major fractures.

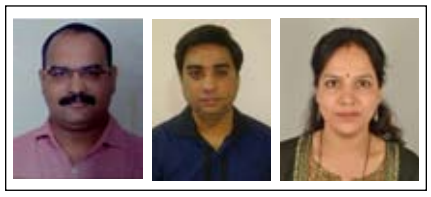
Physical trauma, is almost always associated with some psychological distress, and leads to financial loss in addition to increased economic burden. In India, 2 to 2.5% of GDP is lost only due to RTAs. As trauma can affect all ages of people, the impact on life years lost is equal to the life years lost from cancer, heart disease and HIV combined. Trauma injuries account for 30 % of all life years lost worldwide. Thus, morbidity and disability associated with trauma is significant and needs to be tackled.

Trauma Data from Casualty, BARC Hospital (July 2015 to June 2016)

- 2350 cases of physical injuries were attended to in this 1 yr period
- 50% of the cases had trivial trauma
- 30% needed interventions like wound suturing, application of plaster cast etc.
- 10% cases (237 patients) were hospitalised under surgical or orthopaedic care
- Of the admitted patients, 226 patients under went surgery (operated and discharged)
- In 5% cases, multidisciplinary treatment was required
- Only 0.2% cases (5 patients) needed urgent tertiary care referral
- There was no fatality during this period
- An average number of 6 patients visited casualty per day
- Month of July recorded maximum number of patients

Although accidents and trauma cannot be reduced to zero, its incidence can be decreased or minimised by taking preventive measures. Some of the measures that can be implemented are safe driving, following traffic rules, not drinking and driving, following child passenger safety measures, wearing seat belts & helmets, following home safety measures for kids and seniors to prevent falls etc.

In the event of a significant trauma, early, empathetic & appropriate primary and speciality care within the 'Golden hour' (60 min from the time of trauma/injury) and if required tertiary care referral, are the key to reduce morbidity and mortality.



In-House Research

Safety and Efficacy of Topical Nepafenac 0.1% vs Topical Prednisolone 1% Ophthalmic Solutions in Cataract Patients Undergoing Phaco-emulsification Surgery.

Dr. Bhupesh Jain, Dr. S.U. Nadkarni, Dept. of Opthalmology, BARC Hospital

Aim: To study and compare the effect of Topical Nepafenac 0.1% and Topical Prednisolone 1% ophthalmic solutions in patients undergoing cataract surgery by phaco-emulsification technique.

Materials and methods: A randomized longitudinal observational study of 98 eyes that underwent uneventful phacoemulsification surgery with Intra-ocular lens (IOL) implantation was done. The patients in both the groups were operated by single surgeon.

Study included two groups- Group A received topical Prednisolone 1% consisting of 54 eyes and Group B received topical Nepafenac 0.1% consisting of 44 eyes. Post-operative follow ups were done on Day 1, week 1, week 5 and week 8 to examine for best corrected visual acuity, slit lamp examination, intraocular pressure(IOP), and fundoscopy.

Results: **Topical** Prednisolone significantly reduced the anterior chamber cells from post-op day 1 to post-op week one, week 5 and week 8 ($p = 0.00$). Topical Nepafenac, when used alone in post-op patients as an anti-inflammatory agent, also significantly reduced the anterior chamber cells from post-op day 1 to post-op week one, week 5 and week 8. In our study, it was found that topical Nepafenac is an effective anti-inflammatory agent in reducing the anterior chamber inflammation ($p = 0.00$).

The mean preoperative IOP in group A was 13 mmHg (SD = 2.06) which was not significantly different with the mean preoperative IOP in group B which was 13.59 mmHg (SD = 2.31). The mean post-op IOP on day one and that on week one were not significantly different between two groups. But the mean post-op IOP on week 5, 13.20mmHg (SD = 2.43) in group A and 11.80mmHg (SD = 1.86) in group B was significantly different ($p=0.002$). Also, there was statistically significant difference in mean IOP at week 8 between two groups ($p=0.000$).

We found that the best corrected visual acuity in all the post-op follow ups in both the study groups were not significantly different (p values 0.37, 0.59, 0.10 and 0.25).

Conclusion: In our study, both topical Prednisolone and topical Nepafenac are equally effective in treating mild to moderate inflammation after phacoemulsification surgery. However, topical Prednisolone increased the intraocular pressure post-operatively whereas topical Nepafenac did not.

To A Woman Who Keeps on Giving

Have you heard of the HeLa Cell?
Its universality
In the polio vaccine and
Other cures for humanity

This cell is immortal
Quite remarkably
Taken by a doctor back in '51
Surreptitiously

The patient was a woman
Named Henrietta Lacks
And unknown to all who've been vaccinated
She lived in Baltimore and was black

Biopsy from her terminal cancer
Came 11,000 patents by the way
There are tons of this oldest cell line
More than would comprise her entire body today

Henrietta lives forever
Though not often spoken of
She sees all the healthy children
From her resting place above

- Janis Thompson

Poster Presentations:

- Antiglobulin Test: Significance in Hemolytic Anemia: **Dr. Yagyesh Shah**, Dr. Raji Naidu, Dr. Uma Chaturvedi, Dr. Susan Cherian,Dr. Prachi Gaddam. Bharatiya Vidyapeeth Medical College, Pune on 27th August, 2016 at TRANSCON 2016.
- A case report of unusual presentation of early onset schizophrenia / obsessive-compulsive disorder: Diagnostic Dilemma: **Dr. Pooja Mehta**, Dr. Anu Karthika, Dr. Vijay Gaikwad, Dr. Shobha Nair, Dr. K. Mazumdar, Dr. Aditi Chaudhari. ANCIPS held at Bhopal in January 2016.
- A case report of seizure / pseudo-seizure disorder : **Dr. Shivraj Peste,** Dr. Anu Karthika, Dr. Vijay Gaikwad, Dr. Shobha Nair, Dr. K. Mazumdar, Dr. Aditi Chaudhari, Mrs. Divya Ramadas. ANCIPS held at Bhopal in January 2016.

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