



Editorial Board

Mentor:

Mr. Denish Patel,

Academic Director

RK University (RKU)

Project Supervision

Dr. Priyanshu Rathod, PhD

Dean, Faculty of Medicine,

School of Physiotherapy, RKU

Chief Editor

Dr. Tejas Mehta, MPT

Asst. Professor,

School of Physiotherapy, RKU

Editors

Miss. Singh Priyanka (4th year)

Mr. Rushik Ukani (3rd year)

Mr. Rohit Tilavat (2nd year)

Miss. Arti Motvani (1st year)

Students Committee

School of Physiotherapy, RKU

Inside this issue:

Evidence Based Practice	2
PT for Quicker Recovery / Ultrasound in Fracture Healing	3
Obesity	4
Importance of breast feeding	5
Sepsis	6
Preventive measures for Sepsis	7
Forth-coming events	8
Art & Skill Section	8

Parkinson's Support Group (PSG)

Summary report of Parkinson's Support Groups' meets at RK University Campus on 12th June, 11

Parkinson's Support Group was established on **WORLD PARKINSON'S DAY**, 11th April, 11 for benefits to peoples with Parkinson's Disease. The primary aim of PSG is to extend support, health awareness, and treatment to needy peoples. The support group has now more than 45 active members of this rare or rarest disease from Saurashtra region.

The Founder President of the PSG **Mr. Khodidasbhai Patel, Chairmen, SHTC Trust and President, RK University** has extended his all support to all members. The founder President has also privileged all members and office bearer, PSG to access RK Physiotherapy and Rehabilitation Research Center and School of Physiotherapy, RK University Campus for holding educational meet, health awareness programs, conducting treatment sessions including rehabilitation, voca-



tional training, MRP, Yoga & Meditation therapy, Art Therapy, etc... All members are very much pleased with support and encourage from faculties of School of Physiotherapy, RK University. Transportation was provided from Rajkot city to RK University Campus for all the members. The meet was initiated with prayer and welcoming new members followed by introductory speech from acting president **Mr. Jani** and **Mr. Parmar** (office bearer, PSG,). The meet had an interesting agendas including visiting RK Uni-

versity Campus, informative talks, games, art therapy, lunch, and special interactive sessions with **Mr. C. Sheth, CEO, Deep Industries, Rajkot** who has diagnosed Parkinson in last year and sharing his experience in worldwide search and outcome of the management of Parkinson's Disease.

The entire faculty of School of physiotherapy has taken keen interest and served for successful completion of this meet.



Evidence-Based Practice: Beliefs, Attitudes, Knowledge, and Behaviors of Physical Therapists

Dr. Devangi vaishnav, Convener, IAP Saurashtra Chapter, Rajkot

Background and Purpose.

Little research has been done regarding the attitudes and behaviors of physical therapists relative to the use of evidence in practice. The purposes of this study were to describe the beliefs, attitudes, knowledge, and behaviors of physical therapist members of the American Physical Therapy Association (APTA) as they relate to evidence-based practice (EBP) and to generate hypotheses about the relationship between these attributes and personal and practice characteristics of the respondents.

Methods.

A survey of a random sample of physical therapist members of APTA resulted in a 48.8% return rate and a sample of 488 that was fairly representative of the national membership. Participants completed a questionnaire designed to determine beliefs, attitudes, knowledge, and behaviors regarding EBP, as well as demographic information about themselves and their practice settings. Responses were summarized for each item, and logistic regression analyses were used to examine relationships among variables.

Results.

Respondents agreed that the use of evidence in practice was necessary, that the literature was helpful in their practices, and that quality of patient care was better when evidence was used. Training, familiarity with and confidence in search strategies, use of databases, and critical appraisal tended to be associated with younger therapists with fewer years since they were licensed. Seventeen percent of the respondents stated they read fewer than 2 articles in a typical month, and one quarter of the respondents stated they used literature in their clinical decision making less than twice per month. The majority of the respondents had access to online information, although more had access at home than at work. According to the respondents, the primary barrier to implementing EBP was lack of time.

Discussion and Conclusion.

Physical therapists stated they had a positive attitude about EBP and were interested in learning or improving the skills necessary to implement EBP. They noted that they needed to increase the use of evidence in their daily practice.

Abstract

Purpose of review: Recently, there has been renewed interest in the spondyloarthropathy family of chronic inflammatory rheumatic conditions, which has been fueled to a large extent by the biologic era. Over the period of the past 2 years in particular, there have been several notable advances. First, there have been a number of large, high-quality randomized controlled trials evaluating the tumor necrosis factor (TNF) blockers and conservative treatments such as physiotherapy and nonsteroidal anti-inflammatory drugs for use in spondyloarthropathy. This has paved the way for the development of better tools to assess outcome in these patients both in daily practice and in the context of clinical trials. This review uses a systematic approach to outline the most recent (within the last 2 years) and the most pertinent advances in the treatments of the spondyloarthropathies, with particular emphasis on ankylosing spondylitis and psoriatic arthritis.

Recent findings:

Supervised group exercise programs maintain flexibility and posture in patients with ankylosing spondylitis, and spa therapy is a cost-effective treatment option in ankylosing spondylitis. Nonsteroidal anti-inflammatory drugs have a role in symptom modification and, more importantly, may prevent structural disease progression in patients with ankylosing spondylitis when administered continuously at a fixed dose. TNF blockers have been evaluated in a number of randomized controlled trials in ankylosing spondylitis and psoriatic arthritis and have been demonstrated to be safe and effective in the short-term management of these diseases. Longer-term trials are awaited with radiographic outcomes to comment on their disease-modifying properties and their long-term safety and efficacy profiles.

Summary:

There has been renewed interest in the spondyloarthropathy family of disorders, with an explosion in the number of trials evaluating outcome with the TNF blockers. To date, no cure has been found for the disease, but these agents are emerging as the best therapeutic option available for patients with ankylosing spondylitis and psoriatic arthritis to date.



Know about the significance of Physiotherapy for Quicker Recovery

Dr. Mitali Gor, Clinical Therapist, Ahmadabad

With care, most injuries may recover completely without extra input. When it comes to a safe and speedy recovery, even the mildest injury has the importance of physiotherapy, or physical therapy.

When an injury occurs, some people prefer to take an aspirin, or other pain-relieving drug, in hopes it will dull the pain. This is fine as long as it is a onetime problem and not a reoccurring again. The importance of physiotherapy comes into play when disease become chronic. For instance, people suffering from back pain, whether just once, or continually, may find quicker relief and recovery through the addition of massage, traction, simple exercise and stretches, and heat therapies. Certain back conditions require these treatments to prevent the muscles from losing elasticity and stiffening, especially after laying down for long periods at a time.

Beyond relief after an injury, prevention is also stressed as an important part of physiotherapy. Health care professionals stress tucking in the pelvis and bending at the knees instead of the waist to protect the back when lifting heavy objects. Patients with chronic respiratory illnesses like Asthma, COPD, or other respiratory disorders require extensive chest physiotherapy.

Coughing, turning, vibration, and clapping techniques are all used in chest physiotherapy to prevent, or force bacteria filled mucus from blocking air passages. These techniques are used on infants, children and adults those who are mostly admitted in ICU.

The importance of physiotherapy extends to patients with injuries in regards to occupational hazards. Neck and shoulder pain, stiffness, dizziness, pain or numbness in the arm or hand, blurred vision and ringing in the ear are all symptoms of whiplash, a condition that can happen in a vehicle, or sports accident. Physiotherapy is often recommended as the first treatment for mild forms of whiplash. Generally, it is required after two weeks or more for more serious whiplash instances.

In the past, doctors and institutions didn't always recognize physiotherapy importance in various Musculoskeletal, Neuromuscular and cardio respiratory conditions. This is partly due to available medications and the growing trend of pharmacies. But now a day's the importance of physiotherapeutic maneuvers are more because of safer and quicker recovery.



Low Intensity Pulsed Ultrasound in Fracture Healing

Dr. Narendra Dhoriyani, MPT, Asst. Professor, RKU.

Millions of fracture occur every year worldwide. However, disturbed bone healing is generally considered a serious medical problem because of the resulting impairment of function. Even though treatment methods have improved over a last few decades, 5-10% of fractures still have postoperative delayed union or non-union as a complication.

In last few decades, an effort has been made to enhance fracture healing using physical and biological methods. Physical methods include the use of use of mechanical stimulation, electromagnetic fields and Low Intensity Pulsed Ultrasound (LIPUS). Ultrasound as a treatment modality is traditionally used in the field of Physiotherapy. The effect of Ultrasound on bone healing has become well established during the past decades.

The intensities used in the treatment of fractures are considerably lower than those used in physiotherapy because of the risk of over-heating of bone. Currently, the most widely used device in treatment is Low Intensity Pulsed ultrasound(with sound wave of 1.5Mhz with average intensity of $30\text{mW}/\text{Cm}^2$.

Experimental study done by Seiya Jingushi et.al. on Low Intensity Pulsed Ultrasound treatment for post operative delayed union or non-union of long bone fracture and found that union rate was 75% higher in all cases of non union cases of long bone fracture. Thus, experimental studies have shown evidence that Low Intensity Pulsed ultrasound Stimulation results in enhance bone regeneration during fracture healing and callus distraction. Lipus treatment has led to increased callus area and accelerated return of bone strength following fracture.



Nutritional transition and lack of physical activity leads to obesity

Dr. Rekha Antroliya, MPT, Asst. Professor, RKU.

Obesity is a medical condition in which excess body fat accumulated to the extent that it may have an adverse effect on the health. It is defined by body mass index (BMI). Weight in kilogram divided by height in meter square.

Excessive body weight is associated with various diseases, particularly cardio-vascular diseases, type-2 diabetes mellitus, obstructive sleep apnea, ischemic stroke, hypertension, certain type of cancer, osteoarthritis, gallstone and fertility problems.

BMI	Classification
<18.5	Underweight
18.5-24.9	Normal weight
25.0-29.9	Pre-obese
30.0-34.9	Class-I obesity
35.0-39.9	Class-II obesity
>40	Class-III obesity

Changes in diet and reduced energy expenditure via work and leisure often referred to as “Nutritional Transition” contribute greatly to the increase in obesity worldwide. The adverse changes include shift in dietary structure toward higher energy density, greater saturated fat, reduced complex carbohydrate, dietary fibre, fruit and vegetable. A limited number of cases are due primarily to genetics, medical reason and psychiatric illness.

Researchers now link some form of human obesity to a mutant gene. The mutation of ‘obese or ob’ gene disrupt hormonal signals that regulates metabolism, fat storage and appetite. Normally ob gene activated in adipose tissue and produce hormone like protein ‘leptin’ that enters the blood stream. This satiety signal travels to the ventromedial nucleus, the hypothalamic area that control appetite and metabolism. Normally leptin blunts the urge to eat when caloric intake maintain ideal fat stores. With a gene defective for either adipocyte leptin production and/or hypothalamic leptin sensitivity, the brain can not adequately assess the body’s adipose tissue status. Thus the urge to eat remain constant. One study shows that abdominal fat accumulation described as ‘android obesity’ or male pattern or central obesity exist largely among overweight patient among HT, type 2 DM and coronary heart disease.

While lower health risk of ‘gynoid obesity’ or female pattern or peripheral obesity where the majority of excess fat deposits in the body’s gluteal and femoral regions.

“THE ENERGY BALANCE EQUATION: THE KEY TO WEIGHT CONTROL” The rationale underlying the energy balance equation form the basis for a weight loss program. To maintain a desirable body weight energy input (calories in food) should balance energy output (Calories expended in daily physical activities). There are three ways to unbalance the energy balance equation to cause weight loss. By decreasing caloric intake or by increasing caloric output or by combine method of decreasing daily food intake and increasing daily energy expenditure.

Combining exercise with diet restriction offers more flexibility for achieving weight loss than either exercise alone or diet alone. This dual approach reduces feelings of intense hunger and psychological stress compared to weight loss exclusively by caloric restriction. Exercise protocol should include aerobic exercise and resistance training to protect loss of free fatty mass, usually observed when relying solely on diet restriction.



Exercise programme for obesity should be based on low intensity aerobic activity where the duration is progressively increased. Duration and frequency is more important than intensity.”

Resistance training not only strengthens the muscle and bone, but also raises metabolism by increasing the muscle to fat ratio. As a result you will burn more calories at rest. Approximately 3500 Kcal equals the energy equivalent of 1 pound (0.45 kg) of stored body fat. If you are targeting to loss a 1 pound weight weekly, you should burn 500 kcal per day (3500/7). So you should restrict 250 kcal caloric intake and burn 250 kcal by exercise.



BREAST FEEDING... A gift that lasts a lifetime

Dr. Niraj Nesadia, Consultant Neonatologist and Paediatrician

Types of breast milk:

The best milk for a baby is unquestionably breast milk. All health professionals must be equipped with scientific information regarding the superiority of breast milk and must have sound knowledge about the correct technique of breastfeeding in order to promote breastfeeding with conviction and to support breastfeeding mothers with confidence.

Breast milk is natural food for infants. It is species specific & baby specific. BF is important child rearing skill. It is now accepted as human rights. Every year the 'World Breast Feeding Week' is celebrated from 1st to 7th of August. World Alliance For Breastfeeding Action (WABA) has announced the theme for this year's celebration: 'Talk to Me! Breastfeeding a 3D experience'. They are focusing on the communication theme. UNICEF has launched a BFHI (breast feeding hospital initiative) in 1992. There are 10 steps of BFHI. The hospital has to follow 10 steps to recognize as baby friendly hospital.

Ten steps to successful breastfeeding

1. Have a written breastfeeding policy that is routinely communicated to all health care staff.
2. Train all health care staff in skills necessary to implement this policy.
3. Inform all pregnant women about the benefits and management of breastfeeding.
4. Help mothers initiate breastfeeding as early as possible after delivery.
5. Show mothers how to breastfeed and how to maintain lactation even if they should be separated from their infants.
6. Give newborn infants no food or drink other than breast milk, unless medically indicated.
7. Practice rooming-in. It allows mothers and infants to remain together for 24 hours a day.
8. Encourage breastfeeding on demand.
9. Give no artificial teats or pacifiers (also called dummies or soothers) to breastfeeding infants.
10. Foster the establishment of breastfeeding support groups and refer mothers to them on discharge from the hospital or clinic.

- Colostrum: It is milk secreted during the first week after delivery which is yellowish thick and in small quantity. It has high protein, more antibodies. It should never be discarded.
- Transitional milk: It is milk secreted in next 2 weeks.
- Mature milk: follows transitional milk, thinner, watery and contains all nutrients.
- Preterm milk: It is milk of mother who delivers preterm baby. It has more calories, fat, protein and less lactose, phosphorus, calcium as compared to milk from mother of term baby.
- Fore milk: It is milk secreted at the start of BF. It has more protein, sugar, vitamins and minerals.
- Hind milk: It comes at the end of feeding, contains more calories.

Exclusive BF: giving a baby no other food or drink other than breast milk, not even water (except medicines and multivitamin drops). It should be continued till 6 months of age.

Then appropriate complementary feeding started. While BF continued till 2 year of age (the period of maximum brain growth and myelination).

Advantages of BF for mothers:

- Bonding: Hormones released during breastfeeding help to strengthen the maternal bonding and emotional stability.
- Hormone release: Oxytocin helps to decrease post partum bleeding and helps in uterine involution.
- Weight loss: It burns off extra calorie that laid during pregnancy.
- Natural postpartum infertility: Lactational amenorrhea associated with exclusive BF helps in spacing between two births.

Benefit to baby:

Physiological: It is sweetest milk with high lactose content. The protein is very digestible. The lipids are rich in essential fatty acids, long chain poly unsaturated fatty acids and phospholipids. It contain enzymes like lipoprotein lipase and amylase, that improves digestibility and defense against microbes.

Biochemical: The protein is whey protein (80%) rich in lactalbumin and lactferrin, remaining is casein(20%).The non protein nitrogen is high. The solute load is low. Calcium/Phosphorus ratio is more than 2, helps in calcium absorption.

Microbiologically: It contain lactoferrin, peroxidase, lipase, para amino benzoic acid, bifid us factor helpful against microbes.

Immunologically: It is biological fluid, safe & non allergic. It provides passive immunity. It contains secretory IgA, IgM, IgG, T lymphosites, lysozyme, lactoperoxidase, oligosaccharides, lactoferrin, transferin.

Epidemiologically: It decreases morbidity and mortality from diarrhea, respiratory disease, other infections.

Other benefits: Protects against allergies, including Asthma. Breastfed babies have a higher IQ and have less chance of developing hypertension, diabetes mellitus, coronary heart disease, obesity, liver disease and even cancer in later life.



SEPSIS

Dr. Viral Baldania Consultant Physician and Cardiologist

Sepsis can be simply defined as a spectrum of clinical conditions caused by the immune response of a patient to infection that is characterized by systemic inflammation and coagulation. It includes the full range of response from systemic inflammatory response (SIRS) to organ dysfunction to multiple organ failure and ultimately death.

Suspected Source of Sepsis

	Lung	Abdomen	Skin/Soft Tissue	Urinary Tract	CNS
Major Community Acquired Pathogens	<i>Streptococcus pneumoniae</i> <i>Haemophilus influenzae</i> <i>Legionella sp.</i> <i>Chlamydia pneumoniae</i>	<i>Escherichia coli</i> <i>Bacteroides fragilis</i>	<i>Streptococcus pyogenes</i> <i>Staphylococcus aureus</i> <i>Clostridium sp.</i> Polymicrobial infections Aerobic gram negative bacilli <i>Pseudomonas aeruginosa</i> Anaerobes <i>Staphylococcus sp.</i>	<i>Escherichia coli</i> <i>Klebsiella sp.</i> <i>Enterobacter sp.</i> <i>Proteus sp.</i>	<i>Streptococcus pneumoniae</i> <i>Neisseria meningitidis</i> <i>Listeria monocytogenes</i> <i>Escherichia coli</i> <i>Haemophilus influenzae</i>
Major Nosocomial pathogens	Aerobic gram negative bacilli	Aerobic gram negative bacilli Anaerobes <i>Candida sp.</i>	<i>Staphylococcus aureus</i> Aerobic gram negative bacilli	Aerobic gram negative bacilli <i>Enterococcus sp.</i>	<i>Pseudomonas aeruginosa</i> <i>Escherichia coli</i> <i>Klebsiella sp.</i> <i>Staphylococcus sp.</i>

: PATHOGENESIS:**Microbial triggers of disease:**

1. gram-negative bacteria= endotoxin, formyl peptides, exotoxins, and proteases
2. gram-positive bacteria= exotoxins, superantigens (toxic shock syndrome toxin (TSST), streptococcal pyrogenic exotoxin A (SpeA)), enterotoxins, hemolysins, peptidoglycans, and lipoteichoic acid
3. fungal cell wall material.

Systemic Inflammatory Response Syndrome (SIRS):
Patient presents with **two or more** of the following criteria.

1. **temperature** > 38°C or < 36°C
2. **heart rate** > 90 beats/minute
3. **respiration** > 20/min or PaCO₂ < 32mm Hg

leukocyte count > 12,000/mm³, < 4,000/mm³ or > 10% immature (band) cells

Sepsis: SIRS plus a documented infection site (documented by positive culture for organisms from that site). Blood cultures do **NOT** need to be positive. While SIRS, sepsis, and septic shock are associated commonly with bacterial infection, bacteremia may not be present. Bacteremia is the presence of viable bacterial within the liquid component of blood. Bacteremia may be transient, as is seen commonly after injury to a mucosal surface, primary (without an identifiable focus of infection), or more commonly secondary, to an intravascular or extravascular focus of infection.

Severe Sepsis: Sepsis associated with organ dysfunction, hypoperfusion abnormalities, **OR** hypotension. Hypoperfusion abnormalities include but are not limited to:

1. lactic acidosis,
2. oliguria,
3. or an acute alteration in mental status.

Septic Shock: Sepsis-induced hypotension despite fluid resuscitation **PLUS** hypoperfusion abnormalities

DIC in about 38%, and renal failure in about 50%.

(MODS): Presence of altered organ function in an acutely ill patient such that homeostasis cannot be maintained without intervention.

Complications:

Adult respiratory distress syndrome (ARDS)
Disseminated Intravascular Coagulation (DIC)
Acute Renal failure (ARF) Intestinal bleeding Liver failure
Central Nervous system dysfunction Heart failure
Death

The reported incidence of these complications in SIRS and sepsis in different studies is about 19% for CNS dysfunction, 2-8% for ARDS, 12% for liver failure, 9-23% for ARF, and 8-18% for DIC.

In septic shock, ARDS has been observed in about 18%,

Organ Dysfunctions associated with Severe Sepsis and Septic Shock:

Lungs: early fall in arterial PO₂, Acute Respiratory Distress Syndrome (ARDS): capillary-leakage into alveoli; tachypnea, hyperpnea

Kidneys (acute renal failure): oliguria, anuria, azotemia, proteinuria

Liver- elevated levels of serum bilirubin, alkaline phosphatase, cholestatic jaundice

Digestive tract- nausea, vomiting, diarrhea and ileus

Skin - ecthyma gangrenosum

Heart- cardiac output is initially normal or elevated,

Brain - confusion

New Drug in Treating Severe Sepsis:

1. **Suppression of inflammation** [a. directly suppresses monocyte production of nuclear factor-kB (NF-kB), b. inhibits thrombin generation which is proinflammatory, c. minimizes the expression of E-selection on endothelial walls, producing dose-dependent inhibition of leukocyte adhesion at the site of infection. Reduced leukocyte/endothelial interaction down regulates oxygen radical release, decreasing vascular damage.],

2. **Prevention of microvascular coagulation**

3. **Reversal of impaired fibrinolysis** [a. binds with plasminogen activator inhibitor-1 (PAI-1), causing inactivation of PAI-1.

Oath of Physiotherapy

In the presence of my colleagues, friends, families and teachers and in view of the honored profession I am entering into, I solemnly and willingly state that I dedicate myself to the following:

I will practice Physiotherapy with compassion for the vulnerabilities in each of my patients and will work to preserve their dignity and promote their health and welfare. I will value the lives of my patients as I value my own life, through my concern for their significance and with respect for them and the confidential nature of our relationship. I recognize my limitations and will continue to consult with my colleagues and co-workers for knowledge with which I can better treat my patients and for the inspiration to expand and augment my education. I will share my knowledge with my colleagues and patients freely, with compassion and patience. I will work toward the improvement of the quality of life for all of my patients. I will honor the choices that my patients make with respect to their wishes and needs. I will work to improve the practice of Physiotherapy so that all who seek it will receive treatment which is proper, ethical and just. I will not allow my judgment regarding the practice of my profession to be influenced by race, creed, religion, greed or unethical behavior. I will expect the same behavior from my colleagues and co-workers. Thus, with this oath, I freely accept the obligations and rewards which will accompany my practice of Physiotherapy.



SHTC Trust

School of Engineering

1. B. Tech Mechanical Engineering.
2. B. Tech Computer Engineering.
3. B. Tech Electronics and Communication.
4. B. Tech Civil Engineering.
5. B. Tech Electrical Engineering.
6. B. Tech Information and Technology.
7. M. Tech in Machine designing.
8. M. Tech Thermal Science.
9. M. Tech Computer Science.
10. M. Tech Electronics & Communication.
11. Master of Computer Application
12. Doctor of Philosophy (Ph.D.) (2011)

School of Diploma Studies

1. Electronics & Communication Engineering .
2. Computer Engineering.
3. Electrical Engineering.
4. Mechanical Engineering.
5. Civil Engineering

School of Physiotherapy

1. Bachelor of Physiotherapy (B.P.T)
2. Master of Physiotherapy (M.P.T)
3. Doctor of Philosophy (Ph.D.) (2011)

School of Pharmacy

1. Bachelor of Pharmacy (B. Pharm)
2. Master of Pharmacy (M. Pharm)
3. Doctor of Philosophy (Ph.D) (2011)

School of Management

1. Master of Business Administration (MBA)
2. Post Graduate Diploma in Management (PGDM) (2011)
3. Doctor of Philosophy (Ph. D.) (2011)

International Days

World Breastfeeding Week



01 Aug 2011

World Physiotherapy Day

08 Sep 2011



International Literacy Day



08 September 2011

International Day of Peace

21 September 2011



World Heart Day



26 September 2011

World Animal Day

04 October 2011

