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Journal Impact Factor

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Like nuclear energy, the impact factor has become a mixed blessing. I expected that it would be used constructively while recognizing that in the wrong hands it might be abused. In the early 1960s Irving H. Sher and Eugene Garfield created the journal impact factor to help select journals for the Science Citation Index (SCI)

The use of the term “impact factor” has gradually evolved, especially in Europe, to include both journal and author impact. This ambiguity often causes problems. It is one thing to use impact factors to compare journals and quite another to use them to compare authors. The impact factor of a journal reflects the frequency with which the journal's articles are cited in the scientific literature. It is derived by dividing the number of citations in year 3 to any items published in the journal in years 1 and 2 by the number of substantive articles published in that journal in years 1 and 2.

For example, for 1997 impact factors the following formula was used:

\[
\text{impact factor} = \frac{\text{citations in 1997 to articles published in 1995 and 1996}}{\text{articles published in 1995 and 1996}}
\]

The impact factor will help you evaluate a journal’s relative importance, especially when you compare it to others in the same field. Journal Impact factors can be accessed and compared through the Journal Citation Reports database (JCR).

The impact factor is useful in clarifying the significance of absolute (or total) citation frequencies. It eliminates some of the bias of such counts which favor large journals over small ones, or frequently issued journals over less frequently issued ones, and of older journals over newer ones. Particularly in the latter case such journals have a larger citable body of literature than smaller or younger journals. All things being equal, the larger the number of previously published articles, the more often a journal will be cited.

The following points should be borne in mind when consulting impact factors:

- Citation does not automatically imply that a work is of high quality: a work may be heavily cited because lots of other authors are refuting the research findings it contains.
- Beware of citation bias: people may cite their own work, or work from the journals in which they publish.
- An impact factor is a measure of average citation impact, not individual citation impact, so an impact factor cannot be used to measure the performance of an individual.
• Time needs to elapse before a meaningful citation analysis can be made, so new journals tend to fare badly.
• Not all research work is published and cited in the citation indices: conference proceedings, for example are often poorly covered.
• There is a bias in favour of English language material on citation indices.

Different fields of research publish at different rates: there is generally a much stronger culture of publishing in journals and citing the worth of peers in the biomedicine than in engineering.

Conceptually developed in the 1960s, impact factor has gained acceptance as a quantitative measure of journal quality. Impact factor is used by librarians in selecting journals for library collections, and, in some countries, it is used to evaluate individual scientists and institutions for the purposes of academic promotion and funding allocation. Not surprisingly, many have criticized the methods used to calculate impact factor. However, empiric evaluations of whether or not impact factor accurately measures journal quality have been scarce.

The use of impact factor as an index of journal quality relies on the theory that citation frequency accurately measures a journal's importance to its end users. This theory is plausible for journals whose audiences are primarily researchers, most of whom write manuscripts for publication. By citing articles from a given journal in their own manuscripts, researchers are in essence casting votes for that journal. Impact factor serves as a tally of those votes.

A journal's impact within clinical medicine, however, depends largely on its importance to practitioners, most of who never write manuscripts for publication and thus never have a chance to “vote.” Citation frequency may therefore better reflect the importance of clinical journals to researchers than practitioners. Because the opinions of both practitioners and researchers are relevant in judging the importance of clinical journals, the validity of impact factor as a measure of journal quality in clinical medicine is uncertain. The authors therefore sought to examine whether impact factor is a valid measure of journal quality as rated by clinical practitioners and researchers.

Citation density and half-life are also important variables. The citation density (mean number of references cited per article) would be significantly lower for a mathematics article than for a life sciences article. The half-life (number of years, going back from the current year, that cover 50% of the citations in the current year to the journal) of a physiology journal would be longer than that of a journal of molecular biology or astronomy.

The impact factors currently reported by the Institute for Scientific Information in Journal Citation Reports (JCR) may not provide a complete enough picture for slower changing fields with longer half-lives. Nevertheless, when journals are studied within disciplinary categories, the rankings based on 1-, 7- or 15-year impact factors do not differ significantly, as was recently reported in The Scientist.
There are many artifacts that can influence a journal's impact and its ranking in journal lists, not the least of which is the inclusion of review articles or letters. This is illustrated in a study of the leading medical journals published in the Annals of Internal Medicine\textsuperscript{15}.

Impact factor is commonly used as a tool for managing scientific library collections. Librarians faced with finite budgets must make rational choices when selecting journals for their departments and institutions. Impact factor helps guide those choices by determining which journals are most frequently cited. Journals that are cited frequently generally contain articles describing the most notable scientific advances (i.e., those with the greatest “impact”) in a given field and are therefore of greatest interest to researchers, teachers, and students in most scientific disciplines.

In medical libraries, however, the interests of clinicians must also be considered. Journals publishing “cutting-edge” medical discoveries may be cited frequently and highly valued by researchers but may be of less value to clinicians than journals providing, for instance, concise overviews of common clinical problems. Impact factor may therefore be less valid as a guide to selecting high-quality journals in clinical medicine than in other scientific disciplines.

Journal impact factor has its limitations, and we believe that further evaluation of whether and how impact factor measures journal quality is warranted before it is widely adopted as a quantitative marker of journal quality.

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Assessment of Autonomic Functions in Hypothyroidism

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Abstract:

Disturbances in autonomic functions have been observed in many diseases including hormonal disorder (Banisters 1983). Present study was undertaken to study the autonomic functions in thyroid hormones on in 60 untreated hypothyroid patients, using Valsalva and deep breath test, cold pressor test, hand grip test and orthostatic test to assess the sympathetic and parasympathetic reflexes. The results obtained in this study were compared with the age sex matched controls. It is concluded that the sympathetic response is not altered in the hypothyroid cases while reflex vagal activity is significantly reduced.

Introduction:

Thyroid hormones produce various effects on heart and peripheral vascular system causing changes in heart rate and blood pressure, ventricular systolic and diastolic function of the heart. Several studies have been carried out to understand the mechanism of altered cardiovascular functions due to increased thyroid secretion in animals and humans but no studies have been conducted on hypothyroid patients till date.

Levey et al. in 1990 have reported that excess thyroid hormones causes hyper adrenergic state without changing the serum catecholamine level suggesting that increased heart rate in hyper thyroid is attributed to the hyperactive sympathetic system due to sensitization of cardiac catecholamine receptors. Earlier reports by Howitt in 1968, Vander Schoot in 1965 and Grossman in 1971 indicated that sensitivity of cardiac catecholamine receptors remains unchanged in spite of excess thyroid hormones in both experimental animal and human.

The site of action for thyroid hormones is also likely to be in the central nervous system for reducing the vagal tone in hyper thyroid states because iodothyronine compounds have been isolated from various parts of nervous system including hypothalamus and medulla. In studies to elicit baroreflex in hypothyroid patient, it was found that the cardiac vagal motor neurons were at a low excitability state and baroreflex sensitivity was considerably low. This fact indicated that thyroid hormone might have action on CNS structure which integrates autonomic function and behavior. It is surprising that although there are extensive studies in hyperthyroid states to understand the activity of thyroid hormone on autonomic function but studies in hypothyroid states are still lacking.
Material and Methods:

The subjects of the present study were selected from the patients attending the O.P.D. of Endocrinology division of Medicine department in Sir Sunder Lal Hospital, BHU. Fresh untreated, clinically diagnosed or suspected patients from either sex, without any complications or associated diseases, were material for the present study. The patients were carefully examined and history of the illness was taken before bringing them to physiology department, Institute of Medical Sciences (BHU) for further evaluation of autonomic functions. A total of 106 patients were screened for the present study; of which only 30 subjects having specific clinical signs & symptoms suggestive of depressed thyroid activity were included in the present study. The subjects presenting with any other complication apart from thyroid disorder were not included in the study. Subjects who had received any treatment with respect of thyroid or any other relevant organic diseases were also discarded. A group of 30 age and sex matched controls were also subjected to the same tests to compare the autonomic response of the study group.

Methodology:

All subjects from the control as well as study group selected for the present study were asked to perform following procedures to assess their autonomic response.

1. Valsalva maneuver (Valsalva 1704) to record the Valsalva ratio as per the protocol described by Levin\(^9\) in 1966 for assessment of parasympathetic functions.
2. Deep breath test for assessment of vagal efferent pathway
3. Orthostatic test using the method as described by Roser Bannister\(^1\) in 1988 to evaluate the activity of both sympathetic and parasympathetic systems.
4. Handgrip test to assess the efferent sympathetic pathway
5. Cold pressure test was also performed in the subject to observe any change in the heart rate and blood pressure before and after the maneuver (sympathetic response).

Serum T3, T4 and TSH levels were also estimated using standard radioimmunoassay kits in all the 60 subjects to assess the thyroid function quantitatively.

All the data obtained from controls as well as hypothyroid patients during the study was tabulated and analyzed statistically using t test and chi square test.

Results:

There was absence of normal bradycardia following Valsalva maneuver in hypothyroid cases suggesting a reduced vagal reflex activity which might have resulted from the central cardiac vagal excitability due to low level of thyroid hormone in these patients. Valsalva ratio was less than 1.5 in hypothyroid patients; this also signifies altered vagal tone in hypothyroidism. In deep breath test 50% patients showed abnormal change in heart rate suggesting further reduced efferent vagal activity in study group. This observation supports the finding of Valsalva maneuver test.

Abnormal small rise of heart rate on standing in orthostatic test as observed in hypothyroid patients may be due to absence of abrupt reduction of cardiac vagal tone further suggesting modified vagal function. There was no significant fall of blood pressure after...
one minute of standing in orthostatic test. This indicates that sympathetic reflex arc is not much affected in hypothyroids.

Result of cold pressure test in hypothyroid patients was found to be comparable with that of control group indicating normal sympathetic tone in hypothyroid patients.

Handgrip test performed by the hypothyroid patients has shown similar result as found in cold pressor test. Thus the present study suggest that reflex vagal activity is altered without any change in sympathetic function in patients with hypothyroidism and thus Valsalva maneuver test, orthostatic test and deep breath test used in the present study may appear as useful tool for clinical diagnosis of hypothyroidism in areas lacking the modern diagnostic facilities. However more such trials should be undertaken in larger samples prior to employing these as diagnostic tools.

**Discussion:**

The thyroid hormone levels measured in the present study were found to be very much consistent with the other reports as well as the in accordance of clinical diagnosis. The clinical diagnosis of the hypothyroid patients included in the present study was so accurate that none of the patients diagnosed clinically as hypothyroid showed normal or otherwise inconsistent thyroid hormone levels. This is attributed to the strict protocol adopted for diagnosis of hypothyroid patients clinically during screening the patients in the OPD. Data obtained from the normal age and sex matched control subjects was also comparable with the data available in Indian & Western literature.

The mean Valsalva ratio in normal control subjects, an indicator of vagal reflex activity, observed in the present study was 1.69 slightly more than 1.5 as reported by the Hutchinson\(^{10}\) in 1989 & Levin\(^{9}\) in 1966. However, the observations in the present study cannot be compared with the Levin study as the study group in the Levin study was much larger comprising of 200 patients as against in the present study where it was only 30. But the reflex bradycardia observed in hypothyroid patients was significantly reduced as compared to the control.

Kollai & Kollai\(^{5}\) in 1988 have reported that depressed thyroid functions are associated with reduced vagal excitability suggesting the proposed central role of thyroid hormone in maintenance of vagal excitability. Iodothyronine has been shown to be present in different part of the central nervous system like medulla (Koizumi & Kollai\(^{11}\) in 1981, Dratman\(^{12}\) et al in 1982). Hypothalamus being the primary site for generation of vagal tone; this signifies the importance of thyroid hormone in the control mechanism of autonomic reflexes. Therefore it may be speculated that suppressed thyroid function associated with lower Valsalva ratio is due to central action of thyroid hormone on vagal tone.

The present study reveals that during orthostatic test heart rate rise in hypothyroid subjects immediately on standing was significantly lower as compared to normal subjects. This lower rise of heart rate observed in hypothyroid patients indicates blunt inhibition of vagal tone because it is known that immediate heart rate rise is a result of abrupt inhibition of cardiac vagal tone (Bannister\(^{1}\) in 1988). The maximum/minimum heart rate ratio in
control subject was 1.4 which is near to the value demonstrated by Bannister. However the mean ratio in hypothyroid patients being significantly less than control subject may be considered abnormal. This may appear physiological because the ratio in hypothyroid patients is still above 1.0, which has been considered normal in other studies (Bannister in 1988a). The discrepancy between normal and study group may be due to wide variation in ratio found in normal population. The 30\textsuperscript{th}/15\textsuperscript{th} interval ratio in control and hypothyroid group was not found to be statistically significant in the present study which suggests that RR interval is not concluding evidence for the change in vagal activity in hypothyroid patients. The blood pressure change during supine posture as observed in the present study in hypothyroid patients was also insignificant as compared to normal subject. The systolic pressure & diastolic pressure was found in standing posture while no such changes were demonstrated by the hypothyroid patients hence it is difficult at this moment to conclude.

Bibliography:
A Study of Congenital Anomalies In Newborn

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Abstract:

Total 4210 babies were studied in the neonatal period immediately after birth, which shows overall 0.88% incidence of congenital malformations. Incidence was significantly higher (6.1%) in mothers aged > 30 years as compared to younger age group. Religious pattern of mother and consanguinity of marriage had no much effect on the incidence. The incidence was marginally higher in primiparous patients (47.2%). Only in 12% of cases some etiological factors could be found, of which maternal fever in first trimester was the most common. 10 cases with CNS malformations had hydroamnios. The anomaly was detected antenatally in 49% cases with the help of USG. The ratio of still birth to live birth was 4.19:1 suggesting that many of the anomalies are incompatible with life. There was no overall difference in the sex of the babies. However most of anencephalic babies were female. Preterm babies had four times more incidence of congenital malformations as compared to term babies. This represents “phenomenon of nature’s selection”. Associated hydroamnios also accounts for preterm labour similarly congenital malformations were more commonly found in low birth weight baby. Out of all system involved in congenital malformation, CNS was the commonest and accounted for 1/3 rd of the cases.

Key Words: Congenital, Abnormalities, Neonates

Introduction:

Early intrauterine period during 3rd – 8th weeks of gestation is the vital period of life for the normal development of organs and organ system or organogenesis. It was observed that better maternal care and improved standards of living have very little effect on the overall frequency of congenital malformations.

A congenital anomaly may be narrowly defined in terms of physical structure as a malformation, an abnormality of physical structure or form usually found at birth or during the first few weeks of life; or defined more widely to include functional disturbance as a defect, any irreversible condition exiting in a child before birth in which there is sufficient deviation in the usual number, size, shape, location or inherent character of any part, organ, cell or cell constituent to warrant its designation as abnormal. A congenital anomaly is thus any alteration present at birth of normal anatomic structure and has cosmetic, medical or surgical significance. The birth of an infant with major malformations, whether diagnosed antenatally or not, evokes an emotional parental response.
recovery is usually impossible. Approximately, 66% of major malformations have no recognized etiology and most of them have multifactorial inheritance. These defects can occur for many reasons including inherited genetic conditions, poor diet, toxic exposure of the fetus for example, to alcohol, birth injury and, in many other cases, for unknown reasons.

Available literature shows that congenital malformations contribute highly to prenatal mortality and postnatal physical defects. Parents are likely to feel anxious and guilty on learning of the existence of a congenital anomaly and require sensitive counseling.

Written records of congenital malformations have come down to us from the ancient inhabitants of Bablonia, in 19th century. In 1973, Olshan AF first studied 14,415 live born children with birth defects between 1952 – 1973. Campbell detected 17% anomalies in high risk groups with 80% detection rate in 1983. In 2002, Baris M. Petrikavlax, studied that prevalence of viruses, especially cytomegalovirus appears to be higher in amniotic fluid from fetuses with USG detected anomalies.

The worldwide incidence of congenital disorder is estimated at 3-7%, but actual numbers vary widely between countries. Congenital malformations affect 2.5% of infants at birth and are responsible for about 15% of perinatal mortality in India.

The present study was carried out to determine the overall incidence, types and distribution of various congenital anomalies both in live born babies and still born babies, and also to find out the major associated maternal and fetal factors, which can help physician to identify the cases early. So that appropriate prophylactic measures can be taken in time, which will prevent handicaps resulting out of congenital anomalies, which will help our developing country to become healthier.

Material and Method:
This was a descriptive, cross-sectional study of newborns and stillborn babies delivered at Sir T Hospital during period from January 2006 to June 2007. Data collection was performed by means of structured from which contained two parts.

At first part, variables recorded were about maternal characters and included the date of admission, age, history of chronic illness, drug ingestion, exposure to X-ray, history of CM in other offspring, parental consanguinity, and were obtained by interviewing with neonates, mother. The second part was about neonatal characters including live, or stillbirth, gestational age, birth order, sex, existence of congenital anomaly and type of it. No autopsy examinations were performed.

Once the diagnosis of major malformation (incompatible with life) was confirmed, pregnancy was terminated by different methods of induction of labor. Mode of delivery was recorded in all Babies were examined jointly by anatomist, obstetrician and pediatrician. The birth weight, sex of baby and nature of anomaly was...
carefully noted. Some of babies were subjected to surgical correction of anomaly if needed in the immediate neonatal period. The mothers of affected babies were asked again about exposure to any probable etiological factors during pregnancy or positive family history. Observation was tabulated and analyzed at the department of Anatomy, Medical College, Bhavnagar.

Observation and discussion:
With improved control of infections and nutritional deficiency diseases, congenital malformations have become important causes of perinatal mortality in developed countries and would very soon be increasingly important determinants of perinatal mortality in developing countries like India. The Study was carried out and observation was tabulated and analyzed at the department of Anatomy, Medical College, Bhavnagar. Out of 4098 singleton delivery there were 35 baby delivered with one of the malformation, we had 55 pairs of twins and 1 pairs of triplets, and we had only 2 malformation among this group. Out of 2 twins’ deliveries, they have Dwarfism and Anencephaly with spina bifida respectively. In all cases second pair of twins babies were normal. Thus, A Total 4210 babies born to 4154 mothers, out of which 37 babies had some anomalies, which is approximately 0.88%.

The incidence of anomalies was however markedly high (6.1%) in mothers with age > 30 yrs (shown in graph I) whereas others have associated 20-35 years maternal age group with higher incidence of congenital malformation. Down’s syndrome is an important example of age related malformation.

Graph I
Incidences of congenital malformation were slightly more in female with F: M ratio of 1.6: 1. Many studies have documented male preponderance amongst congenital malformed babies. Religious pattern of mother and consanguinity of marriage had no much effect on the incidence.

In present study the incidence of congenital malformations declines with increasing birth orders. Amongst Malformed babies 42% were born to primigravida. The relative higher incidence of malformation in primigravida has also observed by Desai et al while Anand et al have found no significant correlation between birth order and congenital malformation.

TABLE I : PATTERN OF MALFORMATIONS ACCORDING TO ANC

<table>
<thead>
<tr>
<th></th>
<th>Case s n = 4154</th>
<th>No of malform ed based on n = 37</th>
<th>Incidence (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Booked</td>
<td>2361</td>
<td>9</td>
<td>0.36</td>
</tr>
<tr>
<td>Emergen cy</td>
<td>1793</td>
<td>28</td>
<td>1.50</td>
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</table>
The Table I shows that the incidence of malformations is slightly higher in those mothers who had not received antenatal care. Clinical suspicious supported by USG help in detection of some anomalies in booked cases. These patients are offered selective termination of pregnancy. Only in 12% cases etiological factors could be detected. Commonest being fever in 1st trimester. In remaining 88%, we are not able to find out the cause of anomalies.

Anand et al\(^\text{27}\) have observed a statistically significant correlation between 1st trimester fever and positive familial history and congenital malformations. In present series 3 mothers had history of drug ingestion in early pregnancy mostly in the form of antibiotics an antiepileptic. However it was difficult to find exact nature of drug in all cases. Twins and radiations also accounted for small no of cases. In the present study also there is a striking correlation between hydromnios and neural tube defects. Out of 37 cases of congenital malformation we were able to detect only 54 cases antenatally.

Most of babies with congenital malformation delivered vaginally. Two patients required LSCS for hydrocephalus. One had emergency LSCS and diaphragmatic hernia diagnosed. One patient having multiple congenital anomalies and another having CTEV, they all were emergency patients.

Congenital malformations were more in pre term deliveries. It is known that abnormal fetuses are likely to be delivered prematurely or aborted, based on the fact that a significant number of babies have chromosomal anomalies. This represents “phenomenon of nature’s selection”. Whether the relationship between pre maturity and congenital is cause or effect is difficult to comment.

In present study out of all malformed babies 79% were having low birth weight and there is inverse relationship between incidence of malformations and birth weight (shown in Graph II). This association of low birth weight and malformations has been well documented\(^\text{23,28}\).

![Graph II](image)

From the above mentioned table one can make out that there is highest involved system is CNS (64.56%) followed by GIT (14.17%). Amongst the CNS Malformations neural tube defects were the commonest of which anencephaly with or without spina bifida constituted ¾ of cases. Most of anencephalic babies were female (66.6%). Majority of CNS malformations were incompatible with life and 69.5% were still births. The GIT and Musculoskeletal system is next common system involved in congenital malformation and are surgically correctable.

Out of total 37 malformed baby, 2 babies were having multiple system...
abnormality and in 15 babies there were more than one system involved thus total 127 malformation were observed in present study. Mishra and Bhaveja\(^{28}\) reported multiple anomalies in 37.6% of anomalies.

A significantly higher incidence of malformation observed among the stillbirths (13.30%) in the present study as compare to live birth (3.2%). It is consistent with earlier reports. Aiyar and Agrawal\(^{25}\) observed that the highest incidence of malformations was among full term normal weight babies.

Thus, congenital malformations are emerging as important perinatal problem contributing to the perinatal mortality and morbidity. The difference between the frequency of types of congenital malformation in different parts of this country and reports from other countries may be due to genetic background and geographic nutritional and socioeconomic differences. More research is needed to determine the factors underlying the various types of congenital malformation encountered in this area.

**Conclusion:**

The study definitely helps to know the pattern of congenital anomalies and the relationship of various gestational and familial factors in relation to congenital anomalies. Use of folic acid prior to and during first trimester can prevent neural tube defects. Malformation scan can detect lethal congenital anomalies. Antenatal testing like amniotic fluid testing can be used to detect certain lethal congenital anomalies, hence maternal education and family planning play a very important role in prevention of congenital anomalies. Consanguinity is associated with increased incidence of anomalies so it should be discouraged.

Congenital malformations also have implication in society as it leads to increase incidence of still birth and neonatal death. Inherited and chromosomal anomalies are associated with loss of physical or mental and intellectual abilities. Often emotion upset and social stigma to parents are beyond the limit of our imagination.

Genetic counseling playa vital role for the high risk parents. It provides information regarding various procedure and diagnostic technique, the risk an consequences of some of the procedure as well as about options available. Genetic counseling at different time period helps in reduction of congenital anomalies, morbidity and mortality resulting from these anomalies.

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Arthroscopic Treatment of Popliteal Cyst and Visualization of Its Cavity Through the Posterior Portal of the Knee

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Abstract:
In regard to arthroscopic treatment of popliteal cysts, we explored the refuted pathology for popliteal cysts proposed by others. Here we introduce an arthroscopic technique using posterior portals to treat a popliteal cyst based on our observation that the opening of the cyst in the joint is a slit-like structure in the posterior wall of the capsule. By disrupting this slit-like structure with our procedure, the popliteal cyst ceased to be palpable and was no longer symptomatic. This technique also provides excellent arthroscopic visualization of the cavity of the popliteal cyst through the knee joint approach. After completion of the resection of the opening, we can easily insert an arthroscope into the cavity of the popliteal cyst from the posteromedial portal through the resected opening. Arthroscopic visualization of the cavity of the cyst showed that the inside wall of the cavity was smooth and had no synovitis. We believe that to disrupt this slit structure is the most pathologically reasonable procedure to treat popliteal cysts surgically.

Key Words:
Arthroscopic surgery, Popliteal cyst, Baker’s cyst, Posterior portal, Knee.

Introduction
Popliteal cysts or Baker’s cysts are most frequently characterized by the enlargement of the gastrocnemius-semimembranous bursa among several bursa around the knee.\(^1\)

Pathogenesis depends on the connection between the joint and bursa, with a valve-like effect allowing the passage of fluid from the joint into the bursa with subsequent distention, producing these cysts.\(^2\)

The surgical treatment for popliteal cysts is usually an open resection. However, a high recurrence rate has been observed after surgical removal of the cyst.\(^3\)

Some surgeons have confronted this problem by proposing a closure of the communication channel between the articulation and the cysts by a simple capsular suturing, or its reinforcement, using the tendons of the gastrocnemius and semimembranous muscles, or with a pedicle graft from the tendon of the medial head of the gastrocnemius.

An alternate surgical treatment for
popliteal cysts is an arthroscopic treatment. It is based on the studies of the pathogenesis that the popliteal cyst is associated with intra-articular disorders. Several investigators have reported that joint disorders are often associated with popliteal cysts. This has led to the concept that the underlying intra-articular lesions should also be treated, with the expectation that surgical correction of the intra-articular disorders would abolish the cyst. This treatment is supported by the hypothesis that popliteal cysts arise from fluid distension of a communicating gastrocnemius-semimembranosus bursa with the joint cavity, and the intra-articular disorders cause the inflammation and effusion of the joint cavity. The other hypothesis is that intra-articular disorders play a role as a valve-like structure in the communication between the joint and cyst, e.g., the meniscal body and the posterior horn that extend to an opening of the cyst in the articular capsule.

However, in our experience in arthroscopic treatment of popliteal cysts, we explored the refuted pathology for popliteal cysts proposed by others. Here, we introduce an arthroscopic technique to treat a popliteal cyst and explain our observation of the slit-like structure between the joint and the bursa. This technique provides excellent arthroscopic visualization of the cavity of the popliteal cyst through the knee joint approach.

**SURGICAL TECHNIQUE**

Patients are placed in the supine position and the affected knee joint is flexed 90° under general anesthesia. Routine arthroscopic examination of the knee joint is performed using standard anterolateral and anteromedial portals.

The first step in the arthroscopic treatment of a popliteal cyst is to establish a posteromedial portal. We make a posteromedial portal by the methods described by Ahn and Ha. Briefly, a 30° arthroscope is inserted through the anterolateral portal into the
space between the medial femoral condyle and the posterior cruciate ligament, and is pushed through the intercondylar notch to the posteromedial compartment with the knee flexed 60° to 90°. If this passage is difficult, the arthroscope can be inserted through the anteromedial portal rather than the anterolateral portal, and passed between the medial femoral condyle and the posterior cruciate ligament. A spinal needle is inserted percutaneously from the medial posterior side of the knee into the posteromedial compartment with the knee flexed 90° under direct arthroscopic visualization of the tip of the needle from inside of the joint. A small longitudinal stab wound is made with a blade at the puncture site. The posteromedial portal is enlarged and kept open with a switching rod. It is usually not easy to find an opening in a popliteal cyst in the posteromedial compartment of the knee joint even when using a posterior portal. To facilitate this step, we percutaneously inject a contrast dye (indigo blue) into the palpated popliteal cyst. The arthroscope is inserted into the posteromedial compartment through the posteromedial portal to view the wall of the posterior capsule. When we push through the skin of the popliteal cyst, the infiltrating dye from the opening of the cyst into the joint space is visualized. Once the opening is located, the capsular tissue around the opening is resected with a motorized shaver (Fig 1).

Routinely, a motorized shaver is inserted from the anterolateral or anteromedial portal through the passage between the medial femoral condyle and the posterior cruciate ligament, which was the route used to establish the posteromedial portal. If reaching the opening through this approach is difficult, we use a posterolateral portal to insert the shaver.

A posterolateral portal is established by the posterior trans-septal portal methods described by Ahn and Ha. It is easier to

FIGURE 2. The disrupted opening after the capsular tissue that previously encircled the opening was resected by a motorized shaver.

Perform a resection of the opening through the posterolateral portal than by the anterior portals, but it is more invasive.

After the completion of the resection of the opening (Fig 2), we can easily insert an arthroscope into the cavity of the popliteal cyst from the posteromedial portal through the opening. The wall of the cavity of the popliteal cyst is smooth inside the synovial capsule (Fig 3).

Usually, it takes one month for the swelling of a popliteal cyst to reduce along with the disappearance of inflammation and effusion of the joint. After a couple of months, the popliteal cyst is not palpable or symptomatic and a magnetic resonance imaging (MRI) scan of the area will be clear.

DISCUSSION
Popliteal cysts are connected to the knee joint by means of a valvular mechanism. The presence of such a valve, along with the existence of an effusion, creates a 1-directional flow of the synovial fluid from the articular cavity to the cyst, and is one of the factors responsible for the appearance and persistence of the cyst. Therefore, the pathogenesis of the retention of the fluid in the bursa has 2 factors, joint effusion and a 1-way valve-like mechanism.

There are 2 methods of treating a symptomatic popliteal cyst. The first is to treat the intra-articular disorders, such as meniscal tears and chondral lesions, to reduce the joint effusion. The second is to disrupt the 1-way mechanism between the joint and bursa, and to establish an unobstructed freeway connection between them.

There have been several reports on intra-articular disorders associated with popliteal cysts, and some authors have proposed that intra-articular disorders act as a valve at the communication between the joint and the bursa. Sansone and De Ponti" noted 27 medial meniscal tears in 30 patients (90%) with popliteal cysts. They performed a selective meniscectomy of the medial meniscus, and at the end of the procedure, in 27 of 30 cases, there appeared an oval opening located between the meniscal body and the posterior horn that extended to the articular capsule. They proposed that the tear of the posterior horn of the medial meniscus in all of the structures might act as a valve. However, we remain doubtful that the posterior horn of the medial meniscus in all of the structures might act as a valve. One reason for this doubt is that Rupp et al.8 studied the prevalence of popliteal cysts and the associated intra-articular lesions in 100 patients for arthroscopic surgery of the knee without removal of the cyst and they found that articular cartilage lesions were the intra-articular lesion most often associated with a popliteal cyst. They suggest that lesions of the articular cartilage have an important role in the pathogenesis of secondary popliteal cysts. The articular cartilage lesions can cause the joint effusion, but cannot act as a valve. The second reason is that, in our experience, the arthroscopic visualization through...
the posterior portal showed that there is a significant wide space between the rim of the posterior horn of the medial meniscus and the opening of the bursa, and it is not likely that the structure of the intra-articular disorders can extend to the opening of the bursa located in the medial-posterior wall of the joint capsule. Therefore, the intra-articular disorders can cause the joint effusion leading to a secondary popliteal cyst through the communication between the bursa and the joint, but do not seem to be able to act as a valve for the communication.

There have been several reports about arthroscopic visualization of the opening of the bursa in the joint, and 2 reports on the direct arthroscopic visualization of the cavity of the popliteal cyst through the joint space. Sansone and De Ponti described that it was possible to introduce the arthroscope into the capsular orifice to inspect the cyst connection, which did not seem to have a wall of its own but appeared instead to give access to a cavity defined by the myotendinous structure of the popliteal region. Johnson et al. performed diagnostic arthroscopy to identify the presence of popliteal bursa in 195 knees; 37% of knees had a popliteal bursa identified by the communication with the posterior medial compartment from the routine anterolateral portal via the intercondylar notch or a posterior medial transcutaneous approach. The method of evaluation used in their study provided direct visualization with magnification for identification of the posterior medial compartment for a communication with the popliteal bursa. They described the entry in the cyst behind a capsular fold of the posterior wall of the medial compartment. In their observations, if there was synovitis in the knee joint, there was also synovitis in the posterior medial compartment and in the bursa. However, we are not sure whether the authors of these reports actually visualized the correct opening and the cavity of the popliteal cyst. In our experience, the opening of the cyst in the joint is a slit-like structure in the posterior wall of the capsule. It is often impossible to observe the slit-like opening of the cyst from anterior portals because the opening is located in the far medial side of the posterior compartment of the joint. Furthermore, as the cysts extend from the opening downward in the distal direction, an arthroscope would need to be inserted in a more vertical direction to inspect the cyst deeply enough, which is impossible from the anterior portals. Arthroscopic visualization of the intracavity of the cyst showed that the inside wall of the cavity was smooth with no synovitis, which refutes the results reported by others concerning the myotendinous structure or the presence of synovitis inside of the cyst.

Some cysts have no communication to the joint, and thus no opening inside the joint. Therefore, we routinely confirm the communication between the joint and bursa using axial view MRI before surgery. If we do not confirm it by MRI, then we confirm it by arthrography by injecting a contrast dye into the joint. If there is no filling of the dye into the bursa, we do not perform this arthroscopic technique. In such a case, open surgery is necessary.

In summary, we found a slit structure at the communication between the joint and popliteal cyst. Although we have not yet firmly established whether this slit structure acts as a valve, we do believe that to disrupt this slit structure is the most pathologically reasonable
procedure to treat a popliteal cyst surgically.

REFERENCES

Study of Conservative Management of Frozen Shoulder
Dr. Pinakin Vora
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Abstract:
Frozen shoulder is a condition characterized by pain and global restriction of movement with loss of external rotation. All 77 patients with idiopathic frozen shoulder syndrome diagnosed between January 1995 and January 1998 were included. Study shows that Manipulation followed by physiotherapy should be started earlier rather than late. Some authors believed that after a period of six months most improved pain wise but still have residual restriction of movements after taking treatment in the form of physiotherapy or manipulation under general anesthesia, but they become adapted to do full function of his/her day to day routine work.

Key Words: Frozen shoulder, Conservative, Physiotherapy

Introduction
Frozen shoulder is a condition characterized by pain and global restriction of movement with loss of external rotation. A wide variety of treatments have been investigated, including local or oral steroids, manipulation under anesthesia (MUA), stellate ganglion block, physiotherapy, infiltration brisement, and radiotherapy. There is no general agreement in favor of one form of treatment, and the response to a particular treatment varies in different series.

Lee et al. found no significant advantage of local steroid injection plus physiotherapy against heat plus physiotherapy. However, Roy and Oldham have reported local steroid injections to be highly effective in patients with painful, generally restricted shoulders. Quin also found steroid injections to be effective, but he noted that the improvement in pain and range of movement was short-lived.

Treatment regimens should be judged against natural recovery, which is often slow and incomplete. Simmonds studied 21 patients for more than three years. Nine had persistent weakness and pain, six had weakness or...
Hazleman. loss of movement, and only six regained normal function.

Whether any clinical features such as mode of onset can predict or influence the eventual outcome also remains unclear. Hazleman10 found early presentation but not severity or type of onset (spontaneous or traumatic) to influence the recovery time. Clarke et al15 reported a trend for young males and dominant arm involvement to be associated with a less favorable prognosis.

As both the studies were performed retrospectively, interpretation of these trends is difficult. Feamley and Vadasz16 noted that patients with a raised sedimentation rate responded better to steroid injections. However, they were unable to show that the duration of symptoms at presentation or the mode of onset affected the prognosis.

Since Codman stated in 1934 that “even the most severe cases recover with or without treatment in about two years,”17 subsequent authors have reinforced the perception that the course of frozen shoulder is benign18,19,20,21 and Despite these optimistic predictions, however, it has been our experience that, in some patients, a frozen shoulder remains symptomatic and has somewhat restricted motion even many years after the onset of symptoms. We wondered if frozen shoulder is, indeed, a self-limited condition that resolves spontaneously with little residual restriction of motion. The purpose of this study was to evaluate prognosis of different conservative management of frozen shoulder.

Material and Method

All 77 patients with idiopathic frozen shoulder syndrome diagnosed between January 1995 and January 1998 were included. The criteria for selection for this study consisted of (1) at least a one-month history of pain and stiffness of the shoulder for which no other cause could be identified and (2) documented restriction of passive glenohumeral and scapulothoracic motion of 100 degrees of abduction on less and less than 50 per cent of external rotation22. Glenohumeral joint movement was measured with the scapula stabilized by the researcher, by use of an inclinometer (Cybex).

Patients with significant injury to the ipsilateral shoulder or arm; with surgical procedures on the shoulder, arm, cervical spine, thorax, or breast within the previous 2 years; or with intraarticular deformities, degenerative arthritis, or inflammatory arthritis were not included.

Detail clinical history including personal history, family history was taken and thoroughly examined for pain, local tenderness, stiffness, and restriction of movement like flexion, extension, abduction, internal rotation and external rotation, all the pt were investigated for routing blood investigation and x-ray.

All the patients were managed with shoulder exercises which was done either at home or in a supervised physical therapy setting and most commonly begin with shoulder mobilization exercises. It was further supplemented with various therapeutic modalities like
subaromial injection of lgnocain and cortisone and non steroidal anti inflammatory drug.

Ten patients were managed with manipulation under anesthesia. After a minimum of one month of conservative treatment had failed to result in improvement. No patients were managed with an open operation of the shoulder of arthroscopy.

All patients were followed up at the interval of 6,10 and 14 week, range of motion was measured and noted in four categories from no restriction (>90% movement ) to severe restriction (<70% movement ). All findings were noted down in pre designed perform.

Observation and Discussion:
Fifty patients treated conservatively for frozen shoulder at Shri M.P.Shah Medical college were studied, our of 50 there were 60% male as compared to 40% female. In our study common age group of development of frozen shoulder was between 50-60 years, which is correlated with study done by Benjamin. Involvement of non dominant shoulder was seen in 70% cases which are well correlated with study of hazleman et al. All cases were of unilateral involvement and there was no case suggestive of bilateral involvement.

Out of 50 patients 8% were having diabetes mellitus, 2% had history of MI and one had history of fracture surgical neck humerus before six month as associated condition.

92% of patient in our study showed sever restriction of movement and rest 8% showed moderate movement. 66 % patients were undergone treatment with physiotherapy while 14% had added intra articular injection and 20% had to go for manipulation under anesthesia.

Taking in to consideration as 100% patients were heaving sever restriction at the time of first visit result of different three modality at the time of third follow up (14 week) can be compared as follow In Table I and Graph I

<table>
<thead>
<tr>
<th>Type of treatment / restriction (%)</th>
<th>Sever restriction</th>
<th>Moderate restriction</th>
<th>Mild restriction</th>
<th>No restriction</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physiotherapy</td>
<td>4(12)</td>
<td>13(40)</td>
<td>9(27)</td>
<td>7 (21)</td>
</tr>
<tr>
<td>Intra articular injection</td>
<td>2(29)</td>
<td>0(00)</td>
<td>4(58)</td>
<td>1(13)</td>
</tr>
<tr>
<td>Manipulation Under G/A</td>
<td>2(20)</td>
<td>2(20)</td>
<td>1(10)</td>
<td>5(50)</td>
</tr>
</tbody>
</table>

Thus, above finding suggest that overall excellent result was achieved in 13 cases out of 50 patients of which maximum number were manipulated under G.A. followed by physiotherapy. Next best results were obtained by intra articular injection of hydrocortisone.
Graph I: comparison of different conservative treatment

![Graph](image)

**Conclusion:**
Manipulation followed by physiotherapy should be started earlier rather than late. Some authors believed that after a period of six months most improved pain wise but still have residual restriction of movements after taking treatment in the form of physiotherapy or manipulation under general anesthesia, but they become adapted to do full function of his/ her day to day routine work. We personally found in our short follow up study, manipulation followed by physiotherapy offered better result, however better assessment of result require long term follow up study.

**Reference:**
Study of undergraduate medical students' attitudes towards communication skills
Shah Samir M. Shah Komal S, Dr. Rashmika Parmar
Dr. Dhaval J. Parmar, Dr. Pooja Shah, Dr. Chinmaya Shah
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Abstract:
Communication is a complex phenomenon. Definitions vary in their emphasis on the verbal, non-verbal, content, process, informational, relational and cultural aspects of communication. Present study was done in 85 first year MBBS student by using 13 questions with yes or no single answer, developed by Work Communication, UK. Study shows that medical schools should assess the communication skills of entry level graduate and give special training of communication in the clinical years apart from their clinical teaching in ward and develop assessment tools to evaluate affective domain and communication skill.

Key Words: Communication, Medical Student

Introduction:
Communication is a complex phenomenon. Definitions vary in their emphasis on the verbal, non-verbal, content, process, informational, relational and cultural aspects of communication. In broad terms, it is perhaps most useful to think about communication as a transactional process in which messages are filtered through the perceptions, emotions and experiences of those involved. Adding to the complexity, communication occurs at several levels, including intrapersonal (e.g., patients’ personal constructions of the illness experience), interpersonal, group, organizational, mass, and technological. In addition, communication in medicine can be oral, written, or computer mediated.

Medical students' attitudes towards doctor-patient communication have for long been a concern among medical teachers, curriculum planners and policy makers and have been addressed in many studies.

In 2004 Liddell and Davidson published the use of a questionnaire measuring medical students' attitudes towards five groups of consultation skills, one of which was communication skills. They performed a cross-sectional study of three consecutive classes of 357 final year students before and after attachments in general practice and a Consulting Skills Program. After the program, attitudes towards communication skills were more positive. Study was carried out with objective of investigating medical students’ self-assessments of their communication

Material and Method:
Present study was done in 85 first year MBBS student by using 13 questions
with yes or no single answer, developed by Work Communication, UK5 which included following five areas of communications namely Listening, Blaming and Praising, Availability, Adapting Your Style as per need and General Communication Issues. Maximum score were 13. Responses scoring below 11 were considered to have poor communication skill.

Observation and discussion:
Out of 85 students 44 females and 41 were males. We have recorded score of students in to three divisions: less then 11, 11-12 and 13. This is recorded as follow:

<table>
<thead>
<tr>
<th></th>
<th>F</th>
<th>M</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt;11</td>
<td>20</td>
<td>12</td>
</tr>
<tr>
<td>11-12</td>
<td>22</td>
<td>28</td>
</tr>
<tr>
<td>13</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>Total</td>
<td>44</td>
<td>41</td>
</tr>
</tbody>
</table>

Result of present study suggests that out of 85 only 3 students have score of 13, indicate they clearly know how to communicate well at work. Good communication isn’t easy, though, and they need to maintain their communication skill during their future clinical practice. 55 students having score of either 11 or 12 means they have to address the areas where they are failing and need to work on that area for improvement in their communication skills but rest 38% with the score of less than 11 points means they have poor communication skills in many areas. They are in need of special training course to assist them to improve their communication skills.

Being in medical carrier where their future clinical practice will be affected very much by their communication skill, they have to improve their communication along with their academic improvement, so that at the end of their carrier they become confident enough for better doctor-patient communication.

Thus, medical schools should access the communication skills of entry level graduate and give special training of communication in the clinical years apart from their clinical teaching in ward and develop assessment tools to evaluate affective domain and communication skill.

References:
33. [http://www.workcommunication.co.uk/questionnaire-do-you-have-good-communication-skills.html](http://www.workcommunication.co.uk/questionnaire-do-you-have-good-communication-skills.html)
Awareness about SuJok Therapy among medical students

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Introduction:

It is the ultimate goal of medicine to cure diseases, medical professionals should ponder upon and adopt on those theories and methods which would give effective results and provide the human race with conveniences for their daily lives.

Su = hand and Jok = foot. it is Korean words relating to a therapy that employs hands and feet as treatment areas for the whole body. Professor Park, Jae Woo is a Korean scientist and philosopher. He is the originator of Su Jok Therapy. Through his scientific works he has developed a number of simple and effective systems of treatment, which have gained wide acceptance all over the world among practitioners and the general public. This is known as ONNURI medicine. There are more than 40 systems included in the ONNURI medicine.

Material and Methods:

Present Exploratory study was conducted to find out awareness about sujok therapy among Medical Student. Stratified random sampling method of choosing the samples has been adopted. Data was collected 99 medical student and doctors of medical college of Bhavnagar.

Data was collected by re design Questioner consisting of 13 question

Results:

1. The very first finding of Research is that people mostly from all the fields are aware of Allopathic medical system as it is the most prevalent existing system.

2. Ayurved and Homeopathy is almost equally recognized in the eyes of the respondents of the survey.

3. The respondents have experienced Ayurved and Homeopathy as in this country Ayurved is predominant as India is the birth place of this medicine.

4. Acupressure, acupuncture though very old medical treatment system are still not predominant in the modern world as old traditions are diminishing, in this modern era

5. The requirement of treatment for the average Indian citizen is very high as the frequency of people using various treatments as per this survey is that, medical treatment is required at least once a month or more to 60% of the selected respondents, which in itself is a very astonishing finding.

6. However, with lot of awareness being created by the aftereffects and high...
expense involved in treatment through allopathic medicine people have started
Result Displayed graphically displayed in Graph I and Graph II

Graph I

Graph II
7. moving towards alternate medicine treatment.

8. More than fifty percent of the respondents have shown interest in acquiring further information about “SUJOK THERAPY” and the answers to all the queries are deemed to be true. A lot of efforts and hard work has to be done to create awareness about “SUJOK THERAPY”.

9. From the research it is observed that the Saurastra people are becoming more price conscious and health conscious so many branches of alternate medicine systems can gain popularity and with proper marketing efforts “SUJOK THERAPY” can become the next big revolution in the medical field.

10. STUDENTS (Medical) the students in the medical faculty are all interested in knowing more about this science. They have shown keenness to learn SuJok therapy and its practices only after they attended the seminar before which most of them were not even aware of the word SUJOK. Hence to create awareness of this system very hard work is required from totally dedicated selfless workers, who have full knowledge of this field.

11. DOCTORS some of them have shown interest as it is an easier way to impart treatment and it covers all aspects of human physiology. But as they are in the main stream of medicine they have to be convinced with research and practical findings which is bound to take a lot of time money and energy.

Limitation of the study:

This exploratory research is done focusing on the alternate medicine perception scenario of Saurashtra region only therefore findings and suggestions given on the basis of this research and cannot be considered for the entire alternate medicine field.

Due to limitation of time and cost constraints a sample size of only 5 equity segment are chosen.

Data Analysis and interpretation done may not be that strong due to small sample and random sampling method.

Major source of data collected is primary which might limit the study.

Our own inexperience in the research field might have affected the results.

References

Answer to following questions was either Yes or No

Q1. Are aware about Acupressure?
Q2. Do you know about acupuncture?
Q3. Are you aware that these are types of alternate Medical Treatments?
Q4. Are you aware of the word SUJOK?
Q10. Would you like to know more about alternate Medical Treatments?
Q11. Would you like to know more to treat yourself and your own family and friends by means of alternate Medical Treatments?
Q12. Do you know that there is a certificate Course recognized by Saurastra University on SUJOK THERAPY?
Q13. Would you like to Join the course and help in serving yourself and others?

In following question they have options i.e.

<table>
<thead>
<tr>
<th>Allopathic</th>
<th>Homeopathy</th>
<th>Ayurved</th>
<th>Naturopathy/Sujok</th>
</tr>
</thead>
</table>

Q5. Which Medical Treatments do you know?
Q6. Which Medical Treatments do you prefer?
Q7. How frequently you require Medical Treatment?
Q8. Which Medical Treatments have you used?
Q9. Which Medical Treatments do you like?
Comparative Study Of Serum Magnesium Among Hypertensive, Normotensive And Hypotensive Adults

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The possible role of magnesium ions (Mg++) in the pathogenesis of essential hypertension has recently received increasing attention although magnesium has been neglected trace element till now despite its important role in various metabolic reactions involved in high energy transfer reactions, themogenesis, protein synthesis and anabolism because magnesium is a cofactor in various enzymes like alkaline phosphatases, ATPase, creatine kinases, pyruvate kinases and phosphogluco mutases etc. Magnesium is responsible for maintenance of structure of ribosomal particles in number of different species. Magnesium ions are also required for attachment of mRNA to ribosomes.

Flink et al. (1957) reported that magnesium is required during ammonia metabolism so as to form urea in ornithine cycle. Greville et al. (1944) reported that magnesium competes with calcium.

The physical integrity of DNA helix appears to be dependent of Mg++. The physical size of RNA aggregates is controlled by optimal concentration of magnesium.

Magnesium plays distinguished role in neuromuscular activity as follows:

- Polarisation and excitation of neuromuscular membrane.
- Synaptic transmission at myoneural junction of smooth muscle.
- Muscular contraction and relaxation.
- Normal functioning of nervous system.
- Magnesium opposes the action of acetyl choline on sympathetic ganglia.
- Magnesium brings about the lowering of blood pressure (B.P.) according
- Harvey (1039) and high concentration of Mg++ can cause cardiac arrest.

The aim of this study has been to find and establish the relation between serum magnesium levels and variation in blood pressure (i.e. hypertension and hypotension) and if there is any correlation then to find possibility of therapeutic use of magnesium salts for
the management of blood pressure disorders.

The magnesium salts were shown to reduce the blood pressure when they were advocated for the management of accelerated B.P. in as early as 1925 successfully. Nowadays also magnesium sulfate is successfully used parenterally (IM) by obstetricians all over world for the management of hypertension and convulsion in ecclamptic patients and results are gratifying.

Therefore, my interest is why it could not be used for treatment of hypertension and if relevant for hypotension. My study was conducted under the joint tent of Department of Physiology, Department of Biochemistry and Department of Medicine, KGMC, Lucknow. The blood samples were analysed in the Department of Biochemistry with the help of colorimeter (photochem) and magnesium kit supplied by Randox Laboratories United Kingdom.

After centrifugation of blood sample the serum was separated and mixed with 20 µ liter of working reagent supplied with the magnesium kit, incubated for 60 seconds at room temperature then titrated against blank and standard solution by colorimeter at absorbance of 520 nm. Readings were taken and serum magnesium was calculated by following formula-

\[
\text{A sample} = \frac{\text{A standard}}{2.43\, \text{mg}\%}
\]

**Assay Principle**

Magnesium ions react in an alkaline medium with the metallochrome dye calmagite to form a chromophore which absorbs at 250 nm wavelength. Calcium is excluded from the reaction by complexing with EGTA.

There were ninety hypertensive men and forty five hypertensive women whose serum magnesium estimation was done. There were forty hypertensive men and forty hypertensive women whose serum magnesium levels were estimated and compared against serum magnesium levels of age matched forty six men and twenty one women as controls.

The serum magnesium levels in all these subjects were calculated and compared with the controls then following conclusion was found –

There is no relation of serum magnesium with age, sex or build of an adult individual.

The type of diet whether vegetarian or non vegetarian has no correlation with serum magnesium levels. The socioeconomic status has no bearing on serum magnesium concentration.

There was definite difference in serum magnesium levels between hypertensive and their age matched normotensive controls and this difference was found statistically significant.

The difference of serum magnesium levels between hypotensive and normotensive adults has not been significant although it appeared significant apparently but not statistically.
The serum magnesium variation in a particular group or much difference with previous studies could be because of difference in mineral content of water from locality to locality.

Since it is known that magnesium is a natural physiological calcium blocker and its deficiency is proved in hypertensive adults, there is a possibility of its therapeutic use for the treatment of hypertension.

Therefore, there is need for therapeutic trial of magnesium salts for the treatment of hypertension and other cardiovascular disorders involving beta receptors.

From this study we can hope for the new beta blocker as an alternative to commercially available beta blockers in market and can open a new gate for the management of hypertension, ischemic heart disease etc. Although obstetricians are using magnesium sulfate salt intramuscular successfully for the treatment of hypertension and convulsion in ecclamptic patients yet a therapeutic trial is to be conducted for evaluation of use of magnesium salts for treating hypertension.
Content

Editorial: Journal Impact Factor
Dr. Chinmay Shah

Assessment of Autonomic Functions in Hypothyroidism
Sushil Kumar, S. D. Kulkarni, Manish Choudhary, R.V. Joshi

A Study of Congenital Anomalies In Newborn
Dr. Akruti Parmar, Dr. S.P.Rathod, Dr. S. V. Patel, Dr. S.M.Patel

Arthroscopic Treatment of Popliteal Cyst and Visualization of Its Cavity Through the Posterior Portal of the Knee
Deliwala Ujjval, Jadeja Harshvardhan, Rathod Chetan, Nilesh Loya

Study of Conservative Management of Frozen Shoulder
Dr. Pinakin Vora

Study of undergraduate medical students' attitudes towards communication skills
Shah Samir M., Shah Komal S, Dr. Rashmika Parmar, Dr. Dhaval J. Parmar, Dr. Pooja Shah, Dr. Chinmay Shah

Awareness about SuJok Therapy among medical students
Piyush Mahendra Purohit, Dhaval Pathak, Dr. Chinmay Shah

Comparative Study Of Serum Magnesium Among Hypertensive, Normotensive And Hypotensive Adults
Sajjanlal Verma, Shushil Kumar