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Peer review is the heart of scientific publication. The Editor wishes to place on record the contributions of the following colleagues who have provided their time for peer review of the submissions:

Dr. Pranamita Ray (Associate Professor, Dept. of Pathology)

Dr. Debjani Sinha Ray (Assistant Professor, Dept. of Radiology)

Dr. Suman Das (Visiting Surgeon, Maxillofacial Unit).

Dr. Shaoni Sanyal (Head & Neck Fellow, Tata Medical Centre, Kolkata)

The Editor would like to thank Mr. Argha Nath (Research fellow, Dept. of ENT Head Neck Surgery) for his assistance.

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Editorial

Eliciting Trainee Feedback

Traditional didactic teaching is essentially a one-way process. Be it a lecture, teaching in clinic or bedside teaching, the Faculty, Senior Registrar or senior trainee attempts to instil information in the trainee(s), and will sometimes try to assess how successful the data transfer has been by asking a few questions at the end of the session.

We were all medical students once, and have strong memories of the teaching we received. It is easy to recall the outstanding lecturers, and laugh about the hopeless ones. It is also true that we tend to assume we are good teachers; sometimes we consciously model our teaching style upon that of the teacher who most impressed us during our own student days.

The quality of teaching may be improved by eliciting feedback from the students or trainees at the end of each teaching session, or in a time bound fashion (eg. every 3 months). The medical education definition of feedback is, '... a process whereby learners obtain information about their work in order to appreciate the similarities and differences between the appropriate standards for any given work, and the qualities of work itself, in order to generate improved work'.

In the Indian scenario, however, it is difficult to elicit honest feedback from trainees. Many factors are responsible for this. The system of school education and examination encourages rote learning; the school student is expected to accept the facts taught without question and reproduce the same during the written examinations. This conditioning stays with them during their medical training. A lack of curiosity as to why, say, an antibiotic should be prescribed three times a day for a week, or why a patient should receive Normal saline and 5% Dextrose intravenously in the ratio of 3:1, is perhaps one of the reasons why the amount of good quality clinical research emanating from the three hundred odd medical colleges across the country is so poor. The social norm of being respectful to elders and not answering back also inhibits students and trainees from saying anything that might be construed as even remotely critical of their teachers. Then, of course, there is the fact that a lot of us take criticism, even well-meant constructive criticism, extremely poorly, and feel insulted by it. In the current Covid era, with all postgraduate examinations conducted at home centres, the trainee is acutely aware that the Internal examiner from their own Department may be the difference between sailing through the examination or returning in six months for the supplementary.

One solution is to elicit feedback by an online, anonymous process. In a medical college with two hundred students that may well serve the purpose, but in a Post Graduate Institute like the Vivekananda Institute of Medical Sciences, where there are only a few trainees per department, it is easy enough to identify the respondents. The appraisal system in vogue for the DNB courses allows the trainee to discuss the training they are receiving, and with it the quality of their trainers, to an external appraiser, who then feeds back directly to the National Board. While this may provide the Board assurance as to the quality of training each centre is providing, it does not provide any useful feedback to the trainers which

they could utilise to improve their teaching methods.

A novel solution might be stipulating that all teaching Faculty would have to attend a workshop on teaching methodology every 3 or 4 years, in the course of which they would have to deliver a short lecture and a clinic teaching session which would be rated by the expert faculty and feedback provided.

With the increasing number of both Medical Colleges and students it is essential that the quality of teaching across the country is of a uniformly high standard. For this to happen it is essential that trainee feedback is honestly elicited.

In the current issue we have a number of thought provoking articles. The Guest Editorial, from Dr. Ghosh at the Cleveland Clinic, discusses the effect of the ever increasing rules and protocols in healthcare, and argues for a return to a value driven culture, while Professor Sen discusses the difficult subject of the ideal selection process for medical students. The first truly multidisciplinary clinic at the Seva Pratishthan is described, and the comments of the various faculty reveal the value addition that such team work achieves in patient care. Dr. Bhaumik argues the need for humanities to be included in the medical curriculum. I trust you will enjoy reading them.

With the publication of this issue the Journal is up to date once more, and I will endeavour to keep it that way.

Ranjan Raychowdhury, Executive Editor; Professor, Department of ENT & Head Neck Surgery, RKMSP, VIMS

Guest Editorial

Rules Versus Virtues in Healthcare : A Devilish Dilemma

Subha Ghosh[1]

Rules serve as the bedrock of every civilized society. They are created with the ostensible purpose of ensuring normalcy and preventing lawlessness and chaos. Modern healthcare delivery models are inconceivable without rules, which are linked to patient safety and often better outcomes. Yet, in the face of increasing uncertainty, strict rules are rarely sustainable in the long run unless supported by virtues. In many instances, this amounts to a distinction between 'glued-on' enforced policies which are temporary, versus a sustainable virtuous culture which is embedded in the DNA of an organization. There is a strong business case for embracing virtue in the rule-making process in order to create sustainable value in the current socio economic climate.

We live in turbulent times with increasing uncertainty over what the future holds for most folks. Those of us in healthcare delivery are left searching in the dark when faced with 'unknown unknowns'. As a result, rules and protocols are created to address every conceivable eventuality, and new regulations appear to crop up every day. Complying with a myriad of new diktats has human costs. It leads to increasing stress in the workforce and enhances burnout. Enforcement of a regulatory infrastructure also has financial costs.

A regulatory climate sets limits to what can or cannot be done, with rewards and punishments to maintain compliance. Rules are meant to be rigidly enforced so that people 'fall in line', and thus they restrict us by their nature. On the contrary, virtues are universal, and when acquired can be applied freely to a multitude of different landscapes. They have a much wider reach in an ever changing world and take-off where the boundaries of law end. While rules alone confine us, rules with virtues have the potential to set us free.

In their book, "Exceptions to the Rule", authors Peter Rea, James Stoller and Alan Kolp, highlight the seven classic virtues of organizational culture - trust, compassion, courage, justice, wisdom, temperance and hope–and compare these to the pillars of the Parthenon, which uphold the citadel of integrity.[1]

In a world driven by pressure and uncertainty, thoughtful leaders face countless challenges to drive performance indices among their workforce. Although it may seem intuitive to set up strict rules to abide by, in order to climb up the proverbial corporate success ladder, it can be argued that a rule-based culture of incentivizing compliance and punishing noncompliance ("carrots and sticks") is merely a short term measure that is unsustainable in the long run. Rules set the bar low and serve to remind everyone of the bare minimum expected standards, which then become norm, rather than attempting to build capacity based on one's strengths ("setting the bar high"). As a result of strict rules, people may comply with directives, but remain disengaged and disengaged permanently. Faced with challenging situations

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which fall outside the rule book, they start to falter, while those who rely on character and virtues are able to navigate their way out successfully. As more and more organizations realize the value of long-term employee engagement, the teaching of virtue and character becomes all the more vital for extracting reliable performance in today's high stakes workplace. While upholding the rule of law is important for any civilized society, building an organizational culture around the classic virtues amounts to smart business strategy.[2] Thus we 'do well' by 'doing good'.

The ongoing pandemic is but an example of how normalcy as defined by a set of static rules can be suddenly disrupted. Early into the pandemic, the demand for acute healthcare services far exceeded supply in many hard-hit areas. The US healthcare infrastructure was overwhelmed as many hospital systems struggled with their COVID census. This resulted in rationing of all but the most essential medical services. Healthcare workers grappled with the helplessness that arose out of critical care bed shortages and the loss of thousands of lives that followed. Faced with the daunting prospect of saving lives and staving off a highly contagious virus, a depleted and overworked healthcare workforce found themselves exhausted both mentally and physically. In the midst of this profound human tragedy, there were countless narratives of the triumph of timeless human virtues over seemingly unsurmountable challenges and failure of a system governed by 'rules'. Just as patients from all walks of life put their trust in physicians and nurses, countless healthcare workers put their trust in the power of teams and supported one another. They displayed extreme compassion in taking care of the sick, and showed tremendous courage in risking their own lives while doing so. The sense of justice prevailed as all flavors of physicians, from subspecialists to young trainees fresh out of medical school, formed teams to take care of patients from all strata of society. A just culture revealed itself where healthcare providers were not afraid to voice their concerns on social media and raise awareness over internal safety issues. Physicians relied on collective wisdom and the wisdom of teams over individual opinions and autocratic decision making. Caregivers showed restrain and temperance over their own emotions in the face of increasing despair by offering unyielding hope, which is often the magic elixir for patients who have all but given up.

The benefits of teaching virtues is not only entrenched in the words of ancient philosophers like Plato, but amply evidenced by modern science, which inextricably links performance of teams, engagement and leadership with character building skills and virtues. The word virtue is derived from the Greek word for excellence, which suggests that one's strength of character embedded with certain values fostershigher performance under trying times. An organizational culture built around virtues is not a difficult task, though it requires thoughtful leadership.[3] Luckily, such organizations are all around us. From the US Marines to winning professional sports teams, the benefits of a culture that combines key values with rules-based leadership are easy to see. When we succeed in not separating the two, the result is a more cohesive and engaged team that can make all the difference between defeating a pandemic and succumbing to one.

Most importantly perhaps, it is noteworthy that people are not born with virtues, and character

borne out of virtues cannot be legislated. These lofty goals are indeed acquired skills which can be learnt and practiced over time. Establishing a character founded in the core virtues of trust, compassion, courage, justice, wisdom, temperance and hope, can help someone become a better person. As we strive to cultivate character based on these classic virtues, we not only better ourselves but also the collective culture we desire in others and in our institutions.

Disclosure :

Author declares no conflicts of interest related to the content of this manuscript.

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Original Article

The Joint Head & Neck Clinic at The Vivekananda Institute of Medical Sciences

Shaoni Sanyal[1], Debjani Sinha Roy[2], Mousumi Sengupta[3], Pranamita Ray[4], Kanishka Sarker[5], Suman Das[6], Ranjan Raychowdhury[7]

Abstract :

The treatment and care of cancer patients is a complex undertaking which requires a multidisciplinary approach. The Calman-Hine Report was the first report produced in the UK which set out principles for cancer care; patient and their needs formed the core guiding principle of this report. This article describes the workings of the Head and Neck Joint clinic at Vivekananda Institute of Medical Sciences, Ramakrishna Mission Seva Pratishthan which started in August 2020. The participants include faculty from ENT, Maxillofacial Surgery, Pathology, Radiology and Oncology.

As of October 2021, we have discussed a total of 27 cases. The most common cases seen are laryngeal cancer, oral cancer, thyroid cancer and sino-nasal malignancy. Of all the patients discussed in the Head Neck Clinic, 6 patients expired and 16 are on active follow-up. The clinic has fostered an excellent multidisciplinary working environment, enabled us to streamline patient care, reduce multiple OPD visits and facilitate post-graduate training in Head-Neck Oncology. By International standards, our Joint Clinic is inadequately staffed and the lack of resources prevents us from extending this service to all head and neck patients who attend the outpatient clinic.

The Joint Head & Neck clinic at VIMS is a relatively new endeavour and has so far evoked positive feedback from all participating faculty.

Keywords :

Standard of Care, Oncology, Head and Neck Neoplasms

Introduction :

The Calman-Hine Report was the first comprehensive cancer report produced in the UK, and set out principles for cancer care and the clinical organisation for service delivery. It proposed a change from a generalist model (care given by general surgeons and physicians) that was supported by specialists to a fully specialist service.

The report began with certain principles to govern the provision of cancer care. These included access to uniform high-quality care in the community or hospital, early identification of cancer and availability of national screening programs, patient centered services, providing clear information at all stages to the patient, looking into the psychosocial aspects of care and finally cancer registration and monitoring of treatment outcomes.[1]

These principles placed concerns for the patient and their needs at the heart of policy in response to many accounts of unsatisfactory experiences from patients with cancer.

Cancer care is complex, and involves a variety of health-care professionals. Multidisciplinary teams (MDTs) aim to provide comprehensive care by improving coordination, communication,

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and decision making between health-care team members and patients, and produce better outcomes for the patient. It helps to streamline the care pathway and at the same time provides training to the residents involved in care of these patients. This article describes the workings of the Head and Neck Joint clinic at Vivekananda Institute of Medical Sciences, Ramakrishna Mission Seva Pratishthan.

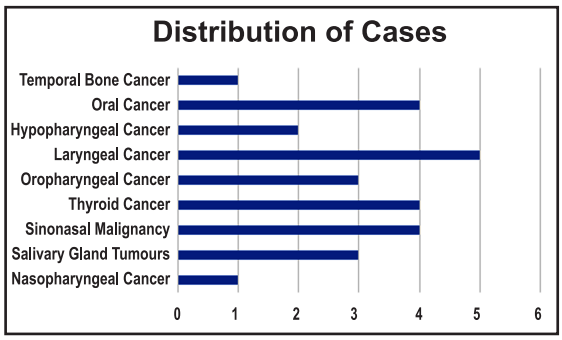
The Joint Head & Neck Clinic :

The Joint Head & Neck clinic was started at Vivekananda Institute of Medical Sciences, Ramakrishna Mission Seva Pratishthan in August 2020. The need for a formal Joint Clinic was felt as there was an impending inspection by the National Medical Council, which has emphasized the need for specialty clinics. Previously, treatment of Head Neck Cancer was done by informal collaboration with the Maxillofacial Surgery unit. In the absence of a Radiotherapy unit, we would have to coordinate with private / Government units in the city to help our patients avail of this treatment as required (definitive/ adjuvant). Though every attempt was always made to follow-up our patients alternately with such units, many patients were lost to follow-up. The requirement for an MDT was also felt in cases where clear cut, evidence-based guidelines did not exist.

The participants in our Joint Head & Neck Clinic include faculty from ENT, Maxillofacial Surgery, Pathology, Radiology and Oncology. The meetings are held twice a month. To facilitate the workings of the clinic and for easier record keeping, standard proform as are filled out for every patient. Patients with complex disease, requiring multi-modality treatment, are taken up for discussion in the Joint Clinic. The treatment plan as decided is then conveyed to the patients and carried out accordingly. Patients who have been discussed in clinic are followed up; further discussion in the Joint Clinic occurs as required. At the year's end, the current status of all Joint Clinic patients is reviewed.

Data :

The Joint Head & Neck Clinic was started on 5th August 2020. As of October 2021, we have seen a total of 27 cases. The distribution of cases has been described in Fig 1. The most common cases seen are laryngeal cancer, oral cancer, thyroid cancer and sino-nasal malignancy.



Of all the patients discussed in the Head Neck Clinic, 6 patients expired and 16 are on active follow-up. All patients who attended the Joint Clinic received definitive / diagnostic surgery within 2 weeks of being discussed. Except 2 patients, the rest were able to commence definitive or adjuvant radiotherapy within 6 weeks of definitive / diagnostic therapy.

Benefits :

The benefits of the Joint Head & Neck Clinic have been many. The views of the participating faculties are given below: -

ENT/Maxillofacial Surgery :

From the surgical (ENT and Maxillofacial) point of view collaboration with the Radiology and Pathology departments has helped in appreciating

the nuances of imaging and histopathology. This has enabled selection of cost-effective imaging for the patients and also the possibility of image guided biopsy in required cases.

In patients who require definitive surgery the appropriate ablative and reconstructive options and the need for adjuvant chemo/radiotherapy can be agreed upon in the same sitting, avoiding the need for multiple OPD visits. This saves time and money, and helps us streamline patient care. Prior to the Joint Clinic meetings, the surgeons were not aware of the entire range of diagnostic imaging and guided biopsies, or IHC markers that were available in the hospital. Post-graduate trainees from all involved disciplines are welcome at the clinic. The clinic has fostered an excellent multidisciplinary working environment, but it could be further enhanced by including critical care /anaesthesia consultants.

Medical Oncology :

The VIMS Head and Neck Oncology joint clinic is the best practice for the management of head and neck malignancies. It has helped me a lot to improve myself as a cancer physician, as I get to interact with the consultants of other specialties. These meeting ensure that the highest level of cancer care can be provided to our patients. It also gives us an opportunity to look back at our shortcomings and ways by which we can improve ourselves in the future. We need more participation of PG trainees from other department like surgery, pathology, radiology. Moreover, in my opinion we can also ask the patient and relatives to be physically present in the hospital during the tumour board, so that we can convey the board decision and we should hand over to them a formal document after the tumour board with a seal.

Radiology :

The multidisciplinary meeting introduced by ENT Dept. of RKMSP has given us an opportunity to discuss the radiological findings and diagnosis with other members of the team. This forum has given us a platform for case discussion, correlation of radiological findings with clinical signs and symptoms. We are immensely benefited by the video recordings shown in the clinic, histopathological slides and final diagnosis and modality of treatment offered to patients. We will be able to improve our quality of reporting and staging of tumours.

It is a well-organized clinic and good communication exists between the team members. The case discussions give a better idea of surgeon's requirement & create a surgeon friendly report. The videos showing surgical procedures help us understand the surgeon's point of view, limitations of imaging and scope for improvement. The Pathology and Oncology discussions provide a complete diagnosis and treatment perspective which helps in follow up and reporting. Multidisciplinary collaborations save time for cancer patients, provides better treatment options & gives PGTs better training. I hope more disciplines, like General Surgery, are involved in future.

Pathology :

From a pathologist's point of view the Joint Clinic provides the relevance and importance of accurate surgical pathology report. Within a half hour case presentation, the Joint Clinic provides flesh and blood to the skeleton of glass slides and request forms. The pathologist can exchange useful information with the radiologist and surgical colleagues. It provides insight to further management of each individual case, hence

importance of relevant information (accurate and updated staging and grading of a tumour) in a histopathology report. Presently it is a very well organised meeting which provides a platform for lively discussion and exchange of information between different specialties. We expect and hope for increase incases for discussion in such meeting.

Limitations :

According to the Improving Outcomes Guidance for Head and Neck Cancer published by the National Institute for Clinical Excellence, certain core members are necessary to run a fully functional MDT (Multidisciplinary Team).[2] These include Surgeons (minimum of three - ENT, maxillofacial, plastic surgery), Clinical oncologist (minimum of two), Pathologist, Radiologist, MDT coordinator, Restorative dentists, Clinical nurse specialist, Speech and language therapist, Senior nurse, Palliative care specialist, Dietician, Data manager and Team secretary.

Extended members of the team include, other specialist surgeons such as General surgeon Ophthalmologist and Gastroenterologist/ radiologist for PEG (percutaneous endoscopic gastrostomy), Anaesthetist, Pain management specialist, nuclear medicine specialist, therapeutic radiographer, dental hygienist, social worker, benefits advisor, liaison psychiatrist, clinical psychologist, counsellor, physiotherapist and occupation therapist.[2]

By these standards, our Joint Clinic is inadequately staffed; even among the participating departments, there are only one or two faculty with a sub-specialty interest in Head and Neck oncology. As a result, during leave of absence there is difficulty in organising the full clinic. Due to lack of resources, we are unable to discuss all the head and neck patients who attend the various outpatient clinic.

Discussions :

MDTs for head and neck cancers were developed in Sweden in 1980, where for more than 30 years an MDT approach has been their standard of care.[3]

Centralization of care, continuous quality control offered by peers in the fields of histopathology, cytology, radiological imaging and oncology will improve the diagnosis and staging and treatment of tumours, which is the foundation upon which treatment decisions are based.[3]

Evidence from studies and reports in the UK on the benefits of MDT working is sparse. Improvements in outcomes due specifically to the introduction of MDT working are difficult to substantiate as studies that assess the effects of service re-organisation are not easy to do. Thus, most studies on MDTs are observational or retrospective, and therefore, susceptible to bias.[4] The MDT clinic, if organized well, should ensure that the clinical workup, staging, including histopathology and imaging, are subject to a second opinion during the course of the clinic.

There are many theoretical advantages of running a Joint Clinic. Due to the nature of our institute any evaluation of the benefits of MDT working requires different parameters from European or North American studies.

Conclusion :

The Joint Head & Neck clinic at VIMS is a relatively new endeavour and has so far evoked positive feedback from all participating faculty. It is an initial step in the development of a truly integrated Head & Neck oncology service.

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Original Article

Analgesic Effects of Ropivacaine with Saline and Ropivacaine with Dexamethasone in Supraclavicular Brachial Plexus Blocks – A Comparative Study

Arkaprava Singharoy[1], Saikat Sengupta[2], Ravi Wankhede[3], Sapna Sirohia[4]

Abstract :

Ultrasound guided regional anesthesia is a well-known technique and is known to have benefits in terms of early discharge and superior quality of analgesia as well as lesser use of systemic analgesics and rarer anesthesia induced complications. Hence the use of adjuvants to local anesthetics become necessary to materialize these advantages. We compared the analgesic effects of dexamethasone to placebo (normal saline) in ultrasound guided supraclavicular brachial plexus blocks in 76 patients who underwent orthopedic or plastic surgery procedures in unilateral upper limb, after separating them into two groups randomly. One group received dexamethasone with ropivacaine while the other group received normal saline with ropivacaine.

The demographics and other characteristics showed no significant differences while the duration of motor blockade and sensory blockade were significantly prolonged in the group which received dexamethasone ($p<0.0001$ for both the parameters). The numerical pain rating score showed statistically significant difference between the two groups and the mean score was lower in the group that received dexamethasone. The time of first rescue analgesia was also earlier in the group that did not receive dexamethasone ($p<0.0001$) as well as the number of times of rescue analgesia was also higher in the non dexamethasone group ($p<0.0001$).

Our study shows that addition of dexamethasone to ropivacaine improves the quality and duration of analgesia in supraclavicular brachial plexus blocks.

Key words :

Dexamethasone, Supraclavicular brachial plexus blocks, adjuvants , local anesthetics , Ultrasound guided regional anesthesia

Introduction :

Supraclavicular brachial plexus blockade was first performed in 1911 by Hirschel using the landmark technique. In 1978K apral and colleagues advocated the use of ultrasound guidance for needle advancement in supraclavicular region.[1] The technique then again regained popularity as under ultrasound guidance incidence the complications were low.

Brachial plexus blockade is often used as an adjuvant to general anesthesia or as a sole anesthesia modality for upper limb surgeries.[2] Brachial plexus blockade for ambulatory upper limb surgeries can significantly reduce pain and nausea, allowing for faster discharge from hospital and provides a superior quality of analgesia and avoids side effects compared with GA.[2] Supraclavicular brachial plexus block is preferred for its rapid onset, reliable anesthesia and as a safe technique for any surgery in the upper extremity that does not involve the shoulder.[3]

Indications for supraclavicular block are

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operations on the elbow, forearm and hand, and the blockade occurs at the distal trunk - proximal division level.[4] At this point the brachial plexus is compact and and a small volume of local anesthetic produces rapid onset of reliable blockade of the brachial plexus.[4] An additional advantage is that the block can also be performed with the patient's arm in any position.[4]

Ropivacaine is a long acting amide local anesthetic and is structurally related to bupivacaine.[3]

Various adjuvants to local anesthetics for brachial plexus blocks have been used to provide prolonged duration of sensory and motor blockade in the perioperative period and thus avoiding the systemic side effects of analgesics.[5] Drugs like epinephrine, clonidine, midazolam, ketamine, opioids has been used with ropivacaine with limited results.[3]

Dexamethasone is a corticosteroid and is known to be having anti-inflammatory properties and their perineural injection is known to cause suppression of nociceptive C fibres by inhibiting ectopic neuronal discharge and effect the analgesia in the perioperative period.[6]

Perineural use of dexamethasone still have some paucity in the available literature, but IV dexamethasone is well known to be part of multimodal postoperative analgesia with increased risk of systemic complications like hyperglycemia or infections.[7]

Methods :

The study was done at Apollo Gleneagles Hospital, Kolkata after taking clearance from the Institutional Ethics Committee and the Scientific Review Committee. A total number of 76 patients were recruited from October 2018 to October 2019, following the undermentioned criteria's.

Inclusion Criteria :

a. Age group :20-70 yrs
b. BMI : 20 -30(kg/m^2)
c. Body weight : > 50 kgs
d. Both genders i.e. male and female
e. Patients scheduled for upper limb surgeries, and on unilateral side
f. Patients who fall within American Society of Anesthesiologists (ASA) categories I and II
g. Patients who can comprehend NRS pain scale
h. Patients who have given consent to be part of the study
i. Patients who will remain admitted in the hospital for a minimum period of 48 hours after the surgery.

Exclusion Criteria :

a. Patients who are on steroid therapy
b. Patients who have other associated injuries in cases of trauma (i.e. head injury and chest injury)
c. Patients who have pre-existing neuromuscular disease
d. Patients who have known sensory or/and motor neuropathy.
e. Patients whose higher mental functions are not preserved.
f. Patients who are on anticoagulants or has known coagulopathies
g. Pregnant patients
h. Patients who are allergic to local anesthetics

The study subjects were recruited after taking

their history and performing a clinical examination and were randomly divided into two groups.

1. Group R received 30 ml of 0.5% ropivacaine with 2ml normal saline in a single shot brachial plexus block through the supraclavicular approach under ultrasound guidance
2. Group RD received 30ml of 0.5% ropivacaine with 2ml dexamethasone (8mg) in a single shot brachial plexus block through the supraclavicular approach under ultrasound guidance.

The patients were also explained about the NRS pain scale in which 0 stands for no pain and 10 stands for the worst pain experienced by the patient ever. All the patients were asked to indicate the number on the scale which was provided that best affected the patient's pain.

Pre procedure Steps :

a. Written informed consent was taken from each patient, after proper counseling and after explaining the procedure of ultrasound guided supraclavicular brachial plexus block.
b. All patients were fasted for at least 6 hours before the surgery for solid foods and upto two hours before surgery for clear liquids.
c. None of the patients in this study received any sedative.

Procedure :

a. The operating room was kept prepared with the anesthesia machine and all emergency drugs and equipment required for resuscitation. General anesthesia drugs were also kept ready in case of block failure or patchy block.
b. After wheeling the patient in the operating room, the patient was put on monitors.
    1. Heart rate
    2. Electrocardiography
    3. Blood pressure (Mean arterial pressure)
    4. Oxygen saturation
c. Each baseline value of the above monitors was recorded
d. All patients were cannulated with a 18G cannula which was inserted in a peripheral forearm vein in the limb opposite to the arm being operated.
e. The study agents were mixed by an anesthesiologist who was not involved in the study in a separate operating room. Drug mixture of 32ml was made by the same anesthesiologist
f. The patient was kept in a supine position with head inclined up to 30 degrees from horizontal and the arm to be blocked was kept on the side of the patient in an anatomically neutral position. The supraclavicular fossa of that side was cleaned with chlorhexidine 2% solution and all other aseptic precautions were taken. A 5-12 MHz linear probe after aseptic cleaning was placed on the supraclavicular fossa parallel to the clavicle and directed inferiorly towards the ipsilateral thorax. The plexus and its surrounding structure were identified (Fig 1). Local anesthetic was given with a 2ml syringe and a 26G needle with 1ml of 2% lignocaine for skin puncture. The drug was deposited under ultrasound guidance around the brachial plexus beneath the sheath covering it with a 20G STIM PAJUNK sonoplex needle using the "in plane" method, all the while visualizing the needle and its tip and after confirming negative aspiration. Drug was first deposited inferiorly on the first rib raising the brachial plexus, following which

the needle was retracted and advanced more horizontally and drug was deposited around the rest of the plexus (Fig no.2). Careful measures were taken to not injure the plexus and any blood vessel.

Anterior :

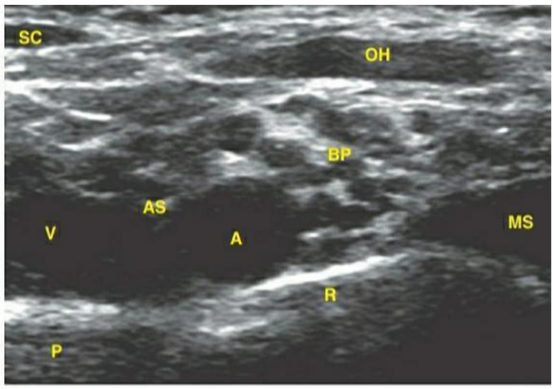


Fig no. 1: Sonoanatomy of the brachial plexus in the supraclavicular fossa SC- Sternocleidomastoid, OH- Omohyoid, BP- Brachial Plexus, A- Subclavian artery, V- Subclavian vein, R- 1st Rib, P- pleura. AS- Anterior Scalene muscle, MS- Middle Scalene muscle.

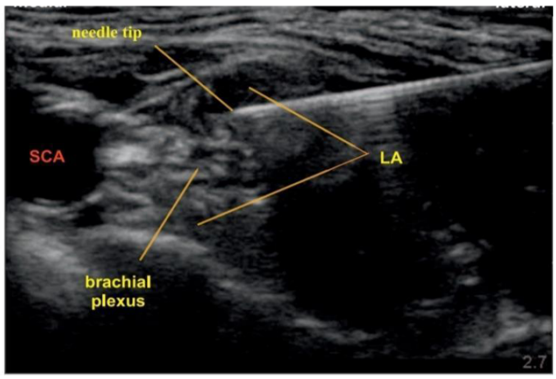


Fig no. 2 : Needle position in supraclavicular brachial plexus block

g. The needle was then removed and the puncture site was cleaned .

h. Sterile dressing was applied over the puncture site.

Post Procedure and Data Collection :

a. Sensory block was assessed using a pin prick test with a three point scale (0=normal sensation, 1=loss of pinprick sensation i.e analgesia, 2= loss of sensation of touch i.e surgical anesthesia).[13] The sensory blockade was assessed every 5 minutes till the score was 2 on the three point scale and then every one hour post-surgery. The duration till onset of sensory blockade was recorded as the time interval from the completion of administration of drug till the patient lost sensation of touch (2 on the three point scale as mentioned above).[13] Then the duration of sensory blockade was recorded as the time interval from the completion of administration of drug till the patient got back normal sensation in the arm of the same side (i.e 0 on the three point scale).[13]

b. Motor block was assessed using Modified Bromage Scale : (4 = full power in relevant muscle group, 3 = reducedpower but ability to move muscle group against resistance, 2 = ability to move relevant muscle group against gravity but inability to move against resistance, 1 = flicker of movement in relevant muscle group, 0 = no movement inrelevant group).[13] The duration till onset of motor blockade was recorded as the time interval from the completion of administration of drug till the patient developed blockade of grade 4 in the Modified Bromage Score.[13] Then the duration of motor blockade was recorded as the time interval from the completion of administration of drug till the patient recovered the motor functions completely i.e. Modified Bromage Scale score of 4.[13]

c. Heart rate, Mean arterial pressure, Percentage Saturation of oxygen were recorded every 10 minutes from beginning till 100 minutes, under the stamps.

d. Duration of surgery was recorded as the time interval from skin incision till closure of skin was completed.

e. The pain severity was assessed using the NRS pain score at the end of surgery and then every 4 hours from after surgery till 24 hours.

All patients received injection Diclofenac Aqua, 75 mg intravenous whenever the patient complained of pain with NRS pain score more than 5, as rescue analgesia, but not more than two such injections were given in a period of 24 hrs. The time interval from the completion of local anesthetic administration till the first dose of injection diclofenac was recorded as time for rescue analgesia.

The number of rescue analgesia injections received in the first 24 hours after surgery were recorded.

Every patient was monitored for possible complications like local anesthetic toxicity, pneumothorax, phrenic nerve palsy and nausea and vomiting.

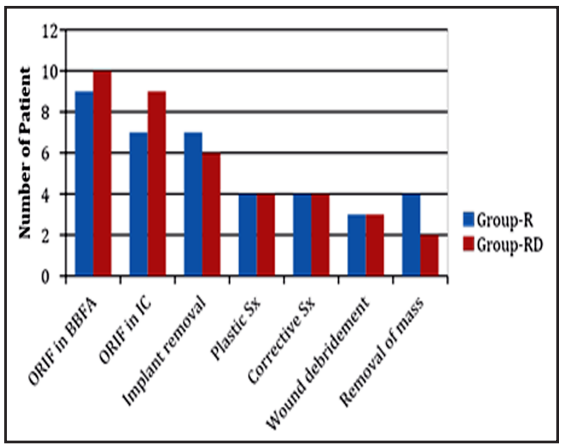
Statistical Analysis :

For statistical analysis data were entered into a Microsoft excel spreadsheet and then analyzed by SPSS (version 25.0; SPSS Inc., Chicago, IL, USA) and Graph Pad Prism version 5. Data had been summarized as mean and standard deviation for numerical variables. Two-sample t-tests for a difference in mean involved independent samples or unpaired samples. Paired t-tests were a form of blocking and had greater power than unpaired tests. A chi-squared test ($\chi 2$ test) was any statistical hypothesis test wherein the sampling distribution of the test statistic is a chi-squared distribution when the null hypothesis is true. Without other qualifications, 'chi-squared test' often is used as short for Pearson's chi-squared test. Unpaired proportions were compared by Chi-square test or Fischer's exact test, as appropriate.

Once a t value is determined, a p-value can be found using a table of values from Student's t-distribution. If the calculated p-value is below the threshold chosen for statistical significance (usually the 0.10, the 0.05, or 0.01 level), then the null hypothesis is rejected in favor of the alternative hypothesis. P-value = 0.05 was considered for statistically significant.

Results :

The age, body mass index, sex, type of surgery (Figure no.3) and the duration of surgery and the vital parameters, i.e. heart rate, oxygen saturation and mean arterial pressure and the ASA categories : of the two groups did not show any significant difference.



- ORIF in BBFA- Open reduction internal fixation in both bone fracture forearm.
- ORIF in IC- Open reduction internal fixation in intercondylar fracture.
- Sx- Surgery

Figure no. 3

Demographics	Group R	Group RD	P value
Age	40.28+/-10.53	42.55+/-10.12	0.34
Sex(M/F)	18/20	21/17	0.49
BMI	22.27+/-2.25	22.65+/-1.61	0.40
ASA(1/2)	22/16	22/16	1
Duration of Surgery	153.31+/-26.59	159.26+/-24.68	0.31

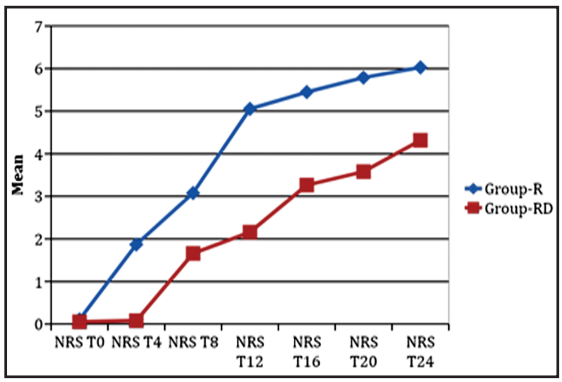
- (M/F) - (Male/Female)
- ASA (1/2) - (American Society of Anesthesiologists) grade 1 / 2

Table no. 1

Parameter	Group R	Group RD	P Value
Sensory Onset	14.39+/-1.83	13.76+/-1.47	0.1031
Sensory Block Duration	475.44+/-45.28	717.84+/-84.58	<0.0001
Motor Block Onset	20.31+/-3.08	19.22+/-1.45	0.052
Motor Block Duration	442.10+/-46.53	551.47+/-85.38	<0.0001
Time of First Rescue Analgesia	504.73+/-46.78	1188.05+/-495.98	<0.0001
Total Number of Rescue Analgesics in The First 24 Hours Post Surgery	1.86+/-0.34	0.60+/-0.67	<0.0001

Table no. 2

The sensory duration, motor block duration, the time of rescue analgesia were significantly longer in the dexamethasone group (RD) and the total number of rescue analgesics in the first 24hrs post surgery was significantly lesser in the dexamethasone group (RD).



Numerical rating score (NRS) trends over time intervals

Figure no. 4

The NRS scores in the R group started increasing from the 4th hour after the surgery while in group RD it started increasing after the 8th hour and the trend showed higher scores and more rapid rise in the group R compare to group RD (Figure no.3)

Discussion :

In the 20th century, with the advent of ultrasound guidance, this technique regained its favor and became a superior technique for anesthesia in upper limb surgeries. McCartney CJ et al[9] and Chan VW et al[10] have shown in their studies that regional anesthetic techniques are superior than general anesthesia in upper limb surgeries and also better in analgesia and facilitates fast track discharge of patients from the post anesthesia care unit. Liu SS et al[11] in 2009 published a systematic review establishing the superiority of ultrasound guided supraclavicular brachial plexus blocks. Since then different adjuvants have been the subject of research to enhance the duration of action of local anesthetics as well as improve the duration and quality of

analgesia but they had limitations or side effects.[36] Pehora C et al[14] in 2017 in a systematic review showed that perineural dexamethasone as an adjuvant increases the duration of sensory block and also reduces postoperative pain intensity and systemic analgesic consumption.

Dar FA et al[13] performed a similar study where they observed the analgesic effects of using dexamethasone as an adjuvant in supraclavicular brachial plexus blocks using the landmark technique for performing the block and then comparing the effects between the test and placebo groups in terms of age, sex, body mass index, duration of surgery, onset of sensory block, onset of motor block, and duration of sensory block and duration of motor block. The study revealed no statistically significant difference between the two groups in terms of age, sex, body mass index and duration of surgery which was similar to the results observed in our study.

In our study the duration of motor block and sensory block was significantly higher in the group that received dexamethasone i.e Group RD when compared to Group R ($p<0.001$ for both the parameters) who receive normal saline along with the local anesthetic, which is consistent with the results found in the study mentioned previously. In our study we also compared the types of surgeries between the two groups and the results showed no statistically significant difference ($p=0.9837$).

Dhumane P et al[15] performed a similar study comparing the effects of lignocaine and adrenaline with bupivacaine with dexamethasone versus lignocaine and adrenaline with bupivacaine with normal saline in supraclavicular blocks, and similarly Islam SM et al[16] performed the same study without adrenaline. In both the studies the group receiving dexamethasone showed prolonged sensory block and motor block duration when compared with the placebo group, also in both the studies the onset of motor and sensory block was faster in the dexamethasone group.

Arish BT et al[17] performed a similar study on dexamethasone and bupivacaine and concluded that dexamethasone does prolong the sensory and motor block duration but there was no change in the onset of sensory and motor blocks.

In our study we saw something similar, where in Group R the mean+/- SD for sensory block duration and motor block duration were (475.4+/- 45.2 mins) and (442.105+/- 46.537 mins), respectively while for Group RD the mean +/- SD for sensory and motor block duration were (717.84 +/-84.58 mins) and (551.47+/-85.381 mins), respectively; with $p<0.0001$ for both the parameters in between the two groups; and the onset of sensory and motor block showed no difference in between the two groups.

Krishna SS et al[3] and Nigam R et al[7] compared the effects of dexamethasone as an adjuvant to local anesthetic (ropivacaine and bupivacaine respectively) in supraclavicular brachial blocks, after dividing their study populations in two groups similar to our study. The study performed by Krishna SS et al[3] showed no difference in the motor onset and sensory onset duration in between the two groups while the other study performed by Nigam R et al[7] showed early motor onset only. In both the studies the duration

of motor block and sensory block were prolonged in the group receiving dexamethasone.

In our study Group RD (the group which received dexamethasone) showed prolonged sensory and motor block duration compared to Group R (the group which received normal saline instead of dexamethasone) with p<0.0001 but we did not see any significant difference in the motor and sensory onset duration between the two groups with p>0.05 for both.

Noss C et al[18] performed a systematic review of randomized clinical trials analyzing dexamethasone as an adjuvant in brachial plexus nerve blocks. The study revealed prolonged postoperative analgesia with reduced postoperative pain scores and reduced early consumption of opioids in the groups receiving dexamethasone, and also the effect on the onset of blocks was variable, but was clinically insignificant.

In our study the results were at per with above, where we found prolonged sensory block in the group receiving dexamethasone i.e Group RD with sensory block duration of 717.84 +/-84.58 mins (mean +/- SD) when compared to that of Group R with sensory block duration of 475.4+/- 45.2 mins (mean +/- SD) with p<0.0001 and no statistically significant difference in the duration of onset of the sensory motor blocks. The results also reveal NRS scores to be significantly lower in Group RD after 4,8,12,16,20 and 24 hrs after surgery when compared with Group R with p<0.0001 for each time interval.

Golwala MP et al[8] studied the effects of dexamethasone as an adjuvant to lignocaine with adrenaline and bupivacaine and found that the group receiving dexamethasone had faster onset of sensory motor block and prolonged analgesia when compared to the other group in the postoperative period; which was similar to our study where Group RD showed prolonged sensory duration and lower NRS scores at all time intervals except the initial one when compared with Group R, p<0.0001.

Kumar S et al[2] studied the effects of dexamethasone as an adjuvant to ropivacaine in supraclavicular brachial plexus blocks and found that the group receiving dexamethasone had prolonged analgesia which was reflected in that the time of first rescue analgesia was longer for the group receiving dexamethasone also the consumption of analgesic was lesser in the same group, also Vieira PA et al[19] and Tandoc MN et al[20] performed similar studies on interscalene approach of brachial plexus blockade and found dexamethasone prolongs the duration of analgesia and reduces postoperative analgesic consumption.

In our study; Group R showed shorter time to rescue analgesia when compared with Group RD, 504.73 +/- 46.78 mins (mean +/- sd) and 1188.0526 +/- 495.98 mins (mean +/-sd) respectively with p<0.0001. The amount of rescue analgesia consumption was also lesser in Group RD when compared with Group R; 0.605 +/- 0.67 (mean +/- sd) and 1.86 +/- 0.34 (mean +/- sd) respectively with p<0.0001. This reflects that the group receiving dexamethasone had prolonged analgesia and was reflected in their prolonged time to first rescue analgesia and consumption of less number of analgesics in the first 24 hours in the postoperative period.

Chatrath V et al[21] studied the effects of

dexamethasone in caudal blocks for as an adjuvant to ropivacaine and concluded that dexamethasone increases analgesia duration and efficacy, similarly Hong JM et al[22] studied the effects of dexamethasone as an adjuvant in epidural analgesia post major abdominal surgeries and concluded that dexamethasone reduces postoperative pain and post-operative VAS (visual analog scale) scores; more significantly in the group that received higher dose of dexamethasone. Ivanova PM et al[23] studied the effects of dexamethasone as an adjuvant to local anesthetics in ultrasound guided femoral blocks after total knee replacements and concluded that dexamethasone indeed reduced incidences of hyperalgesia almost upto 18 to 20 hours in the post-operative period.

Our study yielded similar results where we found out that Group RD had lower mean NRS scores across time intervals of 4,8,12,16,20 and 24 hours compared with Group R and also Group RD showed prolonged duration till rescue analgesia; 504.73 +/- 46.78 mins (mean +/- sd) and 1188.0526 +/- 495.98 mins (mean +/-sd) respectively with $p<0.0001$. In our study Group RD also consumed less number of analgesics in the first 24 hours period when compared with Group R; 0.605 +/- 0.67 (mean +/- sd) and 1.86 +/- 0.34 (mean +/- sd) respectively with $p<0.0001$.

Also in our study we did not record any toxicity or any other complications like pneumothorax, local anesthetic toxicity, neurotoxicity, phrenic nerve palsy, nausea and vomiting.

Thus overall from our study we have found that Group RD, which received dexamethasone had prolonged motor block and sensory block duration when compared with Group R the group that received placebo. Also Group RD had prolonged duration of analgesia with higher time to rescue analgesia and had better quality of analgesia with low NRS scores at 4 hours, 8 hours, 12 hours, 16 hours, 20 hours and 24 hours when compared with Group R (group receiving placebo, i.e normal saline).

Group RD also consumed a lower number of rescue analgesics in the first 24 hours of the postoperative period compared to Group R.

Our study reflects the characteristic of dexamethasone of prolonging sensory and motor block duration and also prolonging the duration of analgesia and efficacy of analgesia; when used as an adjuvant to ropivacaine in the perineural route and in our study we also did not find any significant change in duration of onset of blocks.

Conclusion :

In our study we found that addition of 8mg of dexamethasone to 30ml of 0.5 % ropivacaine in supraclavicular brachial plexus blocks performed under ultrasound guidance causes an increased duration sensory-motor block, increased duration of analgesia, provides better quality of analgesia with lower NRS scores and decreases the consumption of systemic analgesics in the first 24 hours of the postoperative period.

In our study we did not, however, observe any significant change in the time for onset of sensory motor block with addition of dexamethasone.

Conflict of Interest :

None declared

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Original Article

Post-Graduation in Radiology in India : All That You Need to Know

Supreeta Arya[1], Sanjay Jain[2]

Abstract :

Radiology is the branch of medicine that uses medical imaging techniques to diagnose as well as treat diseases. It has in the recent years become one of the most favoured disciplines for postgraduate medicine in India. The reasons are manifold and discussed in this perspective. Briefly it is the era of evidence based medicine where clinical medicine often relies heavily on information supplied by imaging. The plethora of diagnostic imaging modalities such as Ultrasonography, CT scanning, Magnetic Resonance Imaging (MRI), and Positron Emission Tomography (PET) scanning etc. along with continual technological advances together with a competent radiologist for interpretation provide accurate diagnostic support for a variety of indications. Interventional Radiology is a subspeciality where image guided procedures help diagnose and treat diseases. A postgraduate MD degree in Radiology allows practice as either a diagnostic radiologist or an interventional radiologist and is both fulfilling and monetarily rewarding. A recent addition to the disciplines for post-graduation is an MD degree in Nuclear medicine in which field radiopharmaceuticals are used with imaging techniques to diagnose and treat diseases. Also described here is what it entails being a radiologist, the various career avenues after a post-graduate degree in Radiology, the advantages and possible disadvantages of choosing this discipline. In this era of artificial intelligence (AI), the impact of AI on a Radiology career is also discussed.

Radiology is the branch of medicine that uses medical imaging techniques to diagnose and treat diseases. It is perhaps, one of those few branches in medical sciences which integrates with virtually most of the other specialities. The genesis of Radiology is very interesting. What started it all was the accidental discovery of X-Rays by the German physicist Wilhelm Conrad Rontgen in 1895 (for which he was awarded the first Nobel Prize for Physics, newly created in 1901). This resulted in him becoming known as the Father of Radiology, as he had invented a new imaging technique, that paved the way for the branch of Radiodiagnosis. The discovery of Nuclear Magnetic Resonance by Felix Bloch and Edward Purcell, further strengthened this developing field and the Nobel Prize for Physics was jointly awarded to bothin 1952.

It then blossomed into the full – fledged speciality of Radiology, with the invention of Computer - Assisted Tomography (CAT scan or more informally CT scan) in 1972, for which Allan M Cormack and Godfrey New bold Hounsfield were jointly awarded the Nobel Prize for Physiology or Medicine in 1979. A new frontier was touched with the invention of Magnetic Resonance Imaging (MRI) technique for which Paul Lauterber and Sir Peter Mansfield received

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the Nobel Prize for Physiology or Medicine in 2003. Evolving as a speciality, spanning over a century from 1895 till date, from the discovery of x-rays till the invention of Positron Emission Tomography (PET) scanning technique and beyond; Radiology has come a long way. In a nutshell, twenty five scientists have been conferred the Nobel Prize for their pivotal contributions to Radiology, either directly or indirectly.

Now coming to what being a radiologist entails. Today disease management is a team effort in this era of personalized and evidence based medicine. The clinician (surgeon or physician) often requires imaging to support the clinical diagnosis or even reveal the diagnosis and will refer the patient to the radiologist for a particular imaging modality, for e.g. Ultrasonography, CT or MRI. The radiologist is an independent medical advisor who gives his / her inputs to the referring physician or surgeon who has sought an opinion based on the imaging modality requested. The radiologist's opinion is the gateway to further strategy and therapy planning. It is to be appreciated that a physician or a surgeon can only refer a patient to a radiologist, requesting for a particular modality of imaging, for an inference pertinent there to, but the clinician cannot comment on the inference or the competency of the radiologist as he / she is duly qualified in this area. A competent radiologist though is expected to be proactive and closely involved with the clinician in disease management.

Radiology today includes both Diagnostic and Interventional Radiology. Within the domain of Diagnostic Radiology, there are various modalities today : X – Ray, CT scanning, MRI scanning, Ultrasonography and Mammography. Diagnostic Radiology using these imaging methods diagnoses disease based on anatomic abnormalities. Nuclear Medicine is another specialized area of Radiology that uses small amounts of radiopharmaceuticals and is able to detect functional abnormalities using PET scanning, SPECT (single photon emission CT) scanning etc. Interventional Radiology is a sub speciality of Radiology that utilizes minimally invasive image guided procedures to diagnose and treat diseases in many organ systems.

A post graduate MD degree in Radiodiagnosis is a 3 year course where ideally the student obtains training in all the modalities of Diagnostic Radiology (subject to availability of those modalities in the institute/hospital where the candidate is registered for the post graduate degree). While posted in the CT and Ultrasonography departments, there are opportunities to train in image guided fine needle aspiration, image guided core biopsy and basic drainage procedures. In addition the candidate is also exposed to the basics of Interventional Radiology in a dedicated posting to this section. The 3 year course also involves a short duration post in the department of Nuclear Medicine.

Unlike other medical or surgical specialities which today require super specialization after a post graduate degree, Radiology is a fairly quick learning based progressive domain where one can become a practising radiologist within a short span of time after obtaining the MD degree. At the end of the 3 year course, the candidate is

a fully trained radiologist ready to enter practice although ideally the 3 year course is best followed by a one year training in a subspeciality area self-chosen by the radiologist where he/she would like to gain further expertise to practice it. For example, someone might choose to establish independent practice as an entrepreneur as a foetal sonologist after obtaining dedicated training in this area for 6-12 months after completing post-graduation. Independent practice in general ultrasonography may not require any further training after the post graduate degree, since there is an option of referral to a higher centre in any complicated cases. Sonography practice is rewarding in many ways including flexible adjustable hours, smaller investment for a sonography machine, quick recovery of the investment and good monetary remuneration. The satisfaction of the direct patient-radiologist contact cannot be undermined too.

Others might choose cross sectional imaging (CT & MRI) as their field of practice and could work directly in the private sector such as a diagnostic scan centre as a consultant radiologist; or alternately become entrepreneurial, setting up their own scan centre with CT and/or MRI scanners. Today cross sectional imaging entails viewing patient data (scans) on high resolution images at high end workstations and the diagnostic challenge can be exciting. Many would opt for hospital based practice in cross sectional imaging. Hospital based practice as a consultant would require further training of 1-3 years to establish competence to be hired as a consultant. Hospital based practice has its own rewards that include absence of monetary investment, yet access to state of art equipment; fixed work hours, negotiable salary (except in Govt. institutes), benefit of leave from work and the excitement of interacting with referring clinicians at close quarters. In large institutions, there are multidisciplinary team (MDT) meetings where the radiologist regularly interacts with clinicians and joint decisions are taken for patient care, that can be very satisfying.

In hospital based practice, a radiologist often chooses 2 to 3 modalities to practice in; the various combinations could be CT & MRI; CT, Ultrasonography & Mammography; CT, MRI and Ultrasonography; and Xray, Ultrasonography and CT. Being versed in several modalities is to the advantage of both the radiologist as well as the employer, ensuring other radiologists to cover when on leave, increased monetary compensation and better diagnosis of disease by understanding imaging features on various modalities. In tertiary level institutes, there is a further system-wise vertical split such as Neuroradiology, Breast Imaging, Musculoskeletal Imaging, Head & Neck Imaging, Abdominal Imaging etc. This system ensures that the radiologist becomes a highly qualified expert in a particular area with special patient referrals and affords opportunities for publications and international level academics.

To enter practice as an Interventional radiologist requires a 1 year or 2 year fellowship in Interventional radiology or a 3 year DM course in Interventional Radiology which is offered by a few apex institutes. DM courses are also available in Interventional Neuroradiology; Cardiovascular Imaging and Vascular Interventions. Interventional Radiology can be

hugely satisfying to those who have the inclination to choose this branch of radiology as it offers the fulfilment of being able to treat patients and alleviate suffering. Moreover it can offer higher monetary compensation to those in successful practice. To put it loosely, a diagnostic radiologist is more like a physician while an interventional radiologist is more like a surgeon.

For those who do not manage to secure a seat in the coveted postgraduate Radiodiagnosis program, there is a 3 year post graduate MD degree in Nuclear Medicine. This involves imaging using radio-isotopes and is used not only to diagnose (PETCT, SPECT-CT, 99Tc bone scan etc) but also to treat certain diseases such as thyroid disease including metastatic thyroid cancer, metastatic prostatic cancer, pediatric neuroblastoma, neuroendocrine tumours etc. Modern PET scanners are really PET-CT or PET-MRI scanners which amalgamate functional information from the PET scanner with the anatomic information from the CT/MRI and give useful information for disease diagnosis. If you are still keen solely on Radiodiagnosis, there are other options to achieve it; such as a DNB (Diplomate of the National Board of Examinations) in Radiodiagnosis , a 3 year course equivalent to MD Radiodiagnosis. Another option is to train overseas for obtaining fellowships such as FACR from the USA, and FRCR from the UK.

Choosing Diagnostic Radiology or Nuclear medicine as your future calling has some inherent advantages. Unlike many areas of medical speciality which warrant working at odd hoursunder pressure situations, Diagnostic Radiology is a time bound speciality with comfortable working hours making work life balance more easy to achieve. It also a very conducive speciality for both the genders. One concern might be the exposure to radiation; this is entirely unfounded though as modern Radiology departments are very well planned with regard to the thickness of the walls etc. and well shielded from radiation. Moreover every radiologist is meant to wear radiation dosimeters that monitor their level of exposure periodically (every 3 months) with suggested measures in case of inadvertent higher exposure. Interventional Radiology does incur a higher level of exposure; and Interventional radiologists might benefit more from the pocket dosimeters that measure a single high level of exposure satisfactorily.

Another aspect of Radiology, especially relevant in the post Covid era, is the opportunity to engage in Teleradiology / online Radiology consultancy in times when needed. This is especially useful for emergency on call situations where the opinion of a senior radiologist (not available on site) is needed by a junior radiologist. Full time Teleradiology though does not have the advantage of interaction with clinicians and patients as in hospital based practice. Moreover an unfortunate development in teleradiology is the extremely competitive prices in this domain where radiologists undercutting each other has been to their monetary detriment and this issue needs to be addressed.

Finally the discussion is incomplete without mentioning artificial intelligence (AI) and its impact on Radiology today. What is AI? The

term “artificial intelligence” was first used in 1956 at a workshop at Dartmouth College in New Hampshire, organised by John McCarthy, an American computer scientist. AI essentially is a set of programs that makes software “smarter” so that an observer presumes that the output is generated by a human. AI in radiology happens by what is called “machine learning”, a term introduced by Arthur Samuel in 1959 to define a field in which computers learn automatically from data accumulation. A subset of machine learning is “deep learning” and it is the basis of most AI tools for interpreting images in radiology. Deep learning means that the computer has many layers of algorithms that are interconnected; these algorithm layers accumulate data from the inputs provided manually and extrapolate this information to provide an output like a radiologist would provide. The multi-layered algorithms form large “artificial neural networks” that are “trained” using training data sets from which the network “learns.” In radiology, the initial training data set are usually hand-labelled image data sets. Such data sets are usually very large and the initial labelling of the data sets have to be very accurate to yield an accurate AI program. Also the data-set annotation is very time- and labour-intensive; this reality and the lack of large data sets for each problem to be solved are presently deterrents to rapid AI solutions.

When AI first came, it was predicted that radiologists would be out of practice soon as AI would be programmed to do the radiologists’ job. Thisis far from the truth. AI will not replace the radiologist but instead aid the radiologist by making many routine/mundane tasks in the workflow faster. This will leave the radiologists to concentrate on solving complex clinical problems using AI and their own expertise, as relying blindly on AI alone has its own dangers. If solely AI is used in clinical practice, the main medico-legal issue that can then arise is “who is responsible for the diagnosis ?” However if the radiologists educate themselves about AI by collaborating with researchers and learn to use it in a safe and meaningful way, AI can enhance radiology significantly and increase the relevance of radiologists.

So after listing the several positives of choosing Radiology as the speciality for a post graduate degree, we need to ask as to what is the flip side of choosing this area? Radiology is a man-machine coordination speciality; all high end machines require a well cooled environment and that translates into the radiologist sitting in an air conditioned environment throughout the day which in a tropical country has its own charm. The flip side though, especially in cross sectional imaging is the long hours of sitting in artificial lighting, especially when large volumes of reporting are demanded. This and continual monitor viewing could make computer related injuries (CRI) and vitamin D deficiency a reality. However adopting a disciplined approach from the beginning of the career such as a dedicated personal exercise routine and mindfully setting regular timers to periodically take a walk in between reporting can go a long away to prevent CRI. Orthopaedic chairs and standing desks are also in vogue now with many radiologists alternating between sitting and standing while reporting. Regular checks on vitamin D levels

and supplementation are also easy to achieve.

Another drawback could be the lack of patient interaction unlike other clinical branches, and the feeling that the radiologist is not a clinical doctor, but in this era of multidisciplinary management, the proactive responsible radiologist is inevitably deeply involved in patient care. It is important therefore for radiologists to educate themselves with the patient history, the disease profile, the treatment options as well as the critical role imaging can play in managing the disease. This is the practice of "clinical radiology" and deeply impacts treatment decisions. In summary Radiology today is a dynamic and versatile speciality with continual technological advances; where in continuous learning is warranted (achieved through various CMEs at institutional, national and international levels), and offers professional fulfilment along with excellent monetary benefits. It is no surprise therefore that it is one of the subjects in high demand for postgraduation in India.

Further Reading :

European Society of Radiology (ESR). What the radiologist should know about artificial intelligence – an ESR white paper. Insights Imaging 10, 44 (2019). https://doi.org/10.1186/s13244-019-0738-2.

Original Article

Selection of The Right Candidate — A Challenge for Medical Education in India

Indranil Sen

Abstract :

There is almost unanimous agreement amongst medical teachers that the students selected for the UG medical courses are quite oftennot fit to study MBBS. This is not only a question of their intelligence orcognitive faculty, but their temperament, as well as their attitude towards life and people, is quite different from what is actually required to be a 'Doctor for the community' in India. Historically the Charaka Samhita madeit is imperative for the teacher to conduct a thorough assessment of the cognitive, affective and the psychomotor faculties of the aspiring candidate. During the early phase of introduction of western medical education in India, selection of the right candidate was a big problem. It is noteworthy that the criteria did not include any previous knowledge of basic scientific disciplines like Physics or Chemistry and the age of admission was as low as 14 years only. Selection of the right candidates for medical graduation has long remained a burning problem all over the world. An important suggestion may be considered to make a multi-disciplinary syllabus for the selection examination.

Key words :

Education, Medicine, Cognitive, Selection

Declaration :

The original version of this paper was presented at the Medical Education Congress in Mangalore in February 2015 and published in the conference compendium.

There is almost a unanimous agreement amongst the medical teachers that the students selected for the undergraduate (UG) medical courses are, quite often, not fit to study MBBS. This is not only a question of their intelligence or their cognitive faculty : their temperament, as well as their attitude towards life and people, are quite different from what is actually required to be a 'Doctor for the community' in India. In this connection, taking into consideration the universal concern expressed by the medical teachers in different fora, it is an urgent necessity that we should pay due attention to this problem, because unless the right candidate is selected for such a complex responsibility like that of a 'Doctor for the community', all our efforts are doomed to be simply wastage and misadventure.

Historical Background :

Selection of the right candidate for Medicine has long been a contentious and debatable issue in India, as well as abroad. In the ancient tradition of 'Ayurveda' in India, selection of the suitable disciple for Medicine was of utmost importance for a teacher. Charaka Samhita has mentioned an elaborate check list of twenty five (25) qualities before initiating a student in the study of medicine. It is imperative for the teacher that he should not only exclude the absence of physical and mental disabilities of his pupils but also conduct a thorough assessment of the cognitive, affective and the psychomotor faculties of the aspiring candidate.[1] This guideline, to our surprise, remains equally relevant and useful

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even in this 21st century. Apart from the intelligence and skill of the student, the guideline gives prime importance to the honesty, sincerity, diligence, perseverance and other humanqualities and stresses upon the total development of the personality of a medical student, including good physique and sound mind.

During the early phase of introduction of western medical education in India under the colonial rule, selection of the right candidate was a big problem. Initially, the interested medical practitioners of the traditional indigenous medical systems were trained unofficially in the 'Native Hospital' following the European system since1794 in Calcutta.[2] There were 50-100 such candidates till 1807, who were later awarded with the certificate of 'Native Doctors' and were appointed in different hospitals to assist the European Doctors.[3,4] Subsequently the system of training were regularized in the form of formal courses, and the institute was reorganized in 1824 as 'The Native Medical Institution' under the supervision of Dr. Bretton. He took charge after the demise of the first supervisor, Dr. James Jamieson in1823.[5] While selecting the aspiring students for training, preference was given to the sons of the 'Native Doctors'to avoid any conflict with the orthodox Indian society.[6] For a long period there was a strong apprehension amongst the Indians about western medical education; the cadaver-dissectionin particular. Therefore, the foreign rulers decided to play safe. With the introduction of the 'Medical Courses' in the Sanskrit College and Calcutta Madrassah for the Hindoo and the Moslem students respectively, along with the establishment of the 'Native Medical Institution' in 1824, there were signs of gradual acceptance in the Indian society. It is noteworthy that the caste 'Vaidya' students of the 'Sanskrit College', at one time, insisted on the introduction of a westernised medical course in vernacular, in addition to the traditional 'Ayurveda', so that they could acquire proficiency in both the systems, and the demand was fulfilled by the Government.[7]

After the establishment of Medical College, Bengal in 1835, there was an urgent need to formulate the criteria for the selection of the right candidate. In the famous Government Order No. 28 issued on the 28th January, 1835, which marked the beginning of the journey of the Medical College, one can find the following criteria for the aspiring students-

a) they must be within the age limit of 14-20 years
b) they must be from reputed and cultured families
c) they must be of good moral character
d) they must be conversant in reading and writing in English and Vernacular[8]

It is noteworthy that the criteria did not include any previous knowledge of basic scientific disciplines like Physics or Chemistry and the age of admission was as low as 14 years. Later one can find that the teachers of the Medical College like the celebrated Dr. H. H. Goodeve and Dr. William O' Shaugnessey took charge of training the students in the basic scientific disciplines.[9] Presently, since 1956, the Indian Medical Council Act has fixed the selection criteria for the students as :- 'qualifying the (10+2) standards of higher secondary education with Physics, Chemistry & Biology as essential subjects.[10] Almost at the same time in Russia, the minimum eligibility for admission to medical courses included secondary education up to

Standard X and the students had to qualify through an entrance examination testing their knowledge in Physics, Chemistry, Russian language and one foreign language of their choice.[11] There is a unanimous feeling among the medical teachers that apart from the proficiency and aptitude for the scientific disciplines, the medical students are required to have some interest in the so-called subjects of 'Humanities' including Philosophy, Sociology, History and Literature. In older times, our forefathers rightly appreciated the importance of these disciplines in training the minds of the young Doctors but we missed the clue in the frenzy of modernization and fascination for the sophisticated gadgetry.

Present Scenario :

The problem is a global one. Selection of the right candidates for medical graduation has long remained a burning problem all over the world. Even in countries like the United States of America, where the medical education system saw a sea-change after the celebrated report of Dr. Abraham Flexner,[12] the drop-out rates for medical students around 1920 was,at times, as high as 50% in certain cases.[13] As a result the selection criteria as well as the methodology had to be reviewed from time to time. The selection criteria are neither uniform nor unanimous even in the different universities and institutions of the countries of the first world like the United Kingdom and the members of the European Union. There is a genuine problem faced by the Institutes as well as the countries, of striking the right balance between the 'Scientific acumen' and the 'Humane attitude' in formulating the selection criteria and the right methodology. Dr. Bernard Lown, the recipient of the Nobel Peace Prize, exclaims — "The practice of medicine has increasingly shifted to a scientific paradigm and the patient transformed into a biomedical model. It begins with selection of medical students for know-how of scientific subjects during paramedical studies, not for an affinity to the humanities or for a readiness to serve people. The medical school curriculum responds to the promises of science by progressively diminishing training in interpersonal relations… students are inculcated with the reductionist medical model in which human beings are presented as complex biomedical factories. A sick person is merely a repository of malfunctioning organs or deranged regulatory systems that respond to some technical fix. Within this construct, the Doctor, as exacting scientist, uses sophisticated instruments and advanced methods to engage in an exciting act of discovery.[14] The ultimate result is a devastating one. For a large section of young Doctors all over the world, Medicine has lost its 'Scientific' fervor, the 'Art' of Medicine has reduced itself to the 'successfully veiled coercion of the patient-party' in promoting the recent hi-tech gadgets in the corporate hospitals where he or she is employed. It is the overwhelming presence of the 'Trade-Commerce-Market Economy' model of Medicine dominating the whole scenario. Bedside teaching rounds are largely replaced with chart rounds and examining computer print-outs of the latest laboratory data. Attending physicians, who conduct medical rounds, frequently evince scant interest in the sick patient and rather fixate on the biochemical. Molecular or genetic derangement presented by the patient. The focus of teaching necessarily shifts from an holistic approach dealing with an ailing patient to the dysfunctional system or organ. The trainee physician quickly learns that compared with the

sharp images provided by endoscopy and angiography, a patient's history is flabby, confused, subjective and seemingly irrelevant. Being deskilled in bedside medicine and uneasy in relying on clinical competence, young doctors have but little choice in dealing with patients but to rely on sophisticated medical gadgetry.[15] India is one of the worst sufferers of this model. Time and again, leaders of the Government have lamented on the problem of non-availability of qualified Doctors for rural India. Numerous changes of the policy-statements have been forwarded to solve this problem. The Government have left no stones unturned to send them to the villages but, despite almost all types of allurements, coercion, legislative and administrative measures, some of which, if promulgated in the civilized world, undoubtedly could have been stamped as medieval, tyrannical and gross intimidation of one's fundamental rights, the situation did not change much, to our disappointment.

We blamed our children. We tortured them with severe criticism. We accused them of being greedy, irresponsible and careerist. But rarely have we critically analyzed the root causes of this 'alienation' from his/her own fellow countrymen and corrected the fundamental defects of our 'Medical Education System'. We see that this system was meticulously designed to serve the purpose of the western world and to program the young mind in such a way that the sense of 'inferiority' compared to the 'Sahibs' should continue to dominate in the subconscious and should never allow him/her to search for a new horizon for the emancipation of the soul through the true sense of education altogether. No wonder that this system is bound to develop such 'alienation' from the country and the people which has only been further aggravated in the present scenario of 'Globalisation' and 'Consumerist mindset'.[16]

The Way-out :

Selection of a future doctoris indeeda complex procedure and demands far more than the 'successfully conducted nation-wide selection test'. The present method of multiple choice question based test for the national and the state level selection tests are grossly inadequate, as these selection-tests tend to examine only the cognitive domain of the candidate and that too, at a very preliminary level of mere 'information recall and comprehension' as per the Bloomsberg Taxonomy.[17,18] The equally important domains like the affective and the psychomotor domain remain mostly neglected, as a result of which, later on, the society at large often laments about the so-called 'humane in-sensibility' of the Doctors in the community. Moreover, 'Aptitude test' for the candidate and 'Pre-placement counselling' remain unknown topics in the realm of 'Medical Education in India'. This may be part of the reason why mal-adjustment and depressive disorders amongst the medical students are on asteep rise. There should be continuous assessment of a student during his school career with a special emphasis on their aptitude. In the stage of general education in schools, adequate emphasis should be laid on the knowledge of social laws and elementary information about health and hygiene. Medical students should be selected on the basis of their aptitude and performance as revealed by the conscious assessment in the stage of general school education. Initially in this assessment programme personal factors may play. There may even be efforts to undermine and sabotage the programme both from within and outside. If

the principle is accepted by the progressive political leaders and their frontal organizations and if they in turn try to explain it to the people, the latter will definitely come forward to accept it.[19] In addition to this, keeping in mind the increasing violence against the practitioners of Modern Medicine, at the necessity of the sensitization of the young minds to the cause of the suffering humanities must form the guiding philosophy of the medical education system in order to 'Humanise' it.[20.21]

There is a serious and definite requirement for action. India needs to re-assess its methodology for the selection of her future medicos. Government agencies, people from the medical fraternity, educationists, medical institutions, society at large, as well as all groups of stake-holders must come together and develop an acceptable methodology for the selection of the right candidate, who will be entrusted with the responsibility of taking care of the life and the well being of the millions, many of whom are far from the benefits of development and welfare economy. The medical profession, in its historical and ethical context, is far beyond the scope of so-called 'Professionalism' of the present times in the social, cultural and political perception of the society at large. In addition to this, training and awareness of the faculty members who will take care of the development of the 'cognitive-affective-psychomotor' of the students in the right direction, is also of prime importance. Health is said to be the 'mirror of the society' and so is medical education. It is the same set of values and foresight that operate behind the planning of the healthcare in the country and the planning and practice of the medical education. Faculty development is an important component in medical education. It is necessary to organise faculty development in a systematic manner. Steps are necessary at various levels, as the stakeholders are many, viz., the policy makers, the Government of India, National Medical Commission (NMC), teachers, students and private and government college managements.[22]

An important suggestion may be considered. We know that in NEET (UG) Examination, the subjects are Physics, Chemistry & Biological Sciences. But in our experience, it is found that the extent of application of the material sciences are not so intense and mostly indirect in nature in the medical curriculum. Moreover, application of traditional subjects under humanities comes into serious consideration in the personality development of a budding doctors which has been recognized by NMC in the form of AETCOM. Therefore the distribution of marks may be as follows –

Subject	Marks Allotted
➢ Biological Sciences (Botany, Zoology & Physiology)	40
➢ Chemistry	20
➢ Elective Subjects (Any three)- Anthropology/ Psychology/ Statistics/ Sociology/ Philosophy & Logic/ Physics/ Environmental Sciences / History/ Economics/ Biotechnology	10X3=30
TOTAL	**100**

In the ancient tradition of education in India, we often come across a term called 'adhikaribheda'-meaning, 'selection of the rightly deserving candidate for the sacred wisdom', and nowhere probably than in the medical profession, this can be more aptly relevant.

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Original Article

The Need for The Humanities in Medical Education– Part-I

Kaushik Bhaumik

Editors Introduction :

Dr. Kaushik Bhaumik initially trained as a doctor at Medical College, Calcutta, but left to study French and History at Jawaharlal Nehru University, New Delhi. This is the first part of his essay arguing for the need for the Humanities to be included in medical education. The concluding part of the essay will be published in the next edition of the journal.

People of medicine have had a very intimate relationship with the arts, especially literature. If one were to ask what was common to Sigmund Freud, Carl Jung, Somerset Maugham, Georges Duhamel and the German poet Gottfried Benn, then the surprising answer would be that they were all men of medicine who were nominated for the Nobel Prize in literature (Duhamel was nominated 27 times for the prize). There are a few others on this list. The closest a person of science and, one might add, one who was even something of a biologist who won the Nobel Prize for literature, was in 1924 when the French philosopher Henri Bergson won the prize for his work on time, evolution and affect. Of course, amongst the tallest of giants of modern literature we have Chekhov, Bulgakov, Arthur Schnitzler, Louis-Ferdinand Céline and William Carlos Williams who were men of medicine and who never were nominated for the literature prize. My list of favorite 'cult' physician-writers of the 20th century would consist of Duhamel, the German psychoanalyst Alfred Döblin, the father of Filipino nationalism Jose Rizal, the youngest ever Japanese medical graduate at 19 and the first Japanese to ride the Orient Express, Mori Ôgai, the Afro-American writer of the Harlem Renaissance Rudolph Fisher and the Dada poet Richard Hülsenback.

Before that, before the time of the prize, the list of great physician-writers includesmonumental men of letters such as Rabelais, Keats, Friedrich von Schiller amongst many others. On a popular note we have, of course, the literary genius of a doctor, one Arthur Conan Doyle, who would tower over all others in terms of popularity and influence on our times. And the list of writers of fiction who are/were people of medicine in the post-World War II period is a formidable one, from Robin Cook to Khaled Hosseini to Nawal al Saadawi to Kobo Abe to Taslima Nasreen to Michael Crichton to Han Suyin to Alexander McCall Smith…and the list could go on forever. In Bengal, we have the celebrated cases of Balai Chand Mukhopadhyay, more famous under his pen name Bonophul, and Dr. Nihar Ranjan Gupta, the creator of super sleuth Kiriti Roy, as examples of physicians who were great writers of their times.

It may be surmised that the reason why medicine and literature have had such a fruitful relationship across the centuries is because doctors tend to work in rather novelistic conditions. Their

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practice consists of narratives of peoples' lives- their struggles, their aspirations and details of their ordinary lives. A country physician was as a rule a knower of the literary details of peoples' lives from all stations and standings. Chekhov is possibly the greatest exemplar of how well medical practice based on the knowledge of the lives of patients and literary sensibilities can blend together within a single person. In any case, since the matter of a physician's practice is human life itself, a certain literary transaction was always part of the deal. After all, an enigineer, conventionally speaking, does not need to ask biographical or psychological details of steel or concrete, although such matter too has its life story of pathologies to be auscultated from its depths. But that would be spinning the sense of the arts a bit too finely and metaphorically. Let us agree to a more literal sense of the idea of biography and fictionto connect medicine most closely to the literary arts amongst all the sciences. Not suprisingly, it is only physicians who have a world organization for being practitioners of literature-the International Federation of Physician-Writers (FISEM) founded by the French doctor-novelist André Soubiran in 1955 (FISEM has now become UMEM or the World Union of Physician Writers).

One of the interesting outcomes of this close relationship between the practice of medicine and human stories is that physicians have been considered closest to the humanities amongst the practitioners of the modern sciences. Indeed medical colleges have always had a closer relationship with literature than other institutions of scientific training. Interestingly enough, the number of people of medicine who have done well, in say, Bengali cinema is not a trifling one- actors Pahari Sanyal and Subhendu Chatterjee and contemporary filmmaker Kamaleshwar Mukherjee. However, things might be changing as we speak, maybe the profession is getting mechanized and commercialized, the competition too dry, as we see an anxiety around introducing the tenets of the Medical Humanities takes on a sharper tenor in our times. Are physicians not listening to stories of their patients any more and depending more on clinical tests for diagnosis? Have bedside manners deteriorated over the years? Have commonsensical ethical care and pragmatics got lost in the confusion of rapid delivery of services? It is interesting to note that an anxiety that had beset the other sciences for very long time in the modern era- that the sciences need to be humanized, seems to be creeping into the world of medicine as well. Is it that the divide between the 'Two Cultures', that is, between the sciences and the humanities that CP Snow had spoken about in the legendary 1959 Rede Lecture, that might have been less applicable to the medical sciences until recently is finally rearing its head here too?

Interestingly enough, my own speculative throw of dice into this ring would be doctors today, at least in India, seem to be far keener on photography, and that too wildlife and nature photography amongst the arts rather than literature. Many things contrast photography to literature-the absence of conventional narrative and above all, in the case of wildlife and nature photography, an absence of the human being itself from the frame. Indeed, this kind of photography aligns medicine more with the hard

sciences of zoology, botany or metereology than the humanities, except of course in the sense of a photograph being a beautiful picture. Art now seems to be a refuge away from cities, crowds and human beings as cities become unlivable and the place of work violent and noisy. Medical practice, increasingly driven into hospitals, takes away the time needed for longer stories to be heard from patients. The disappearance of the GP (General Practitioner) is the surest sign of the break between the doctor and society. After all the 'General' in GP allowed the physician to have a 'general' view of society, of people of all kinds, as well as a certain specific practice based heavily on the biography of patients. Coming back to Chekhov- his unparalleled ablity to catch a sweep of a society was precisely the eye of a GP. Specialized medicine does not allow for such medical practices of story listening. And it is this erosion of narrative, stories, that afford greater insight into the condition of patients that the field of Medical Humanities seeks to correct in our times by reconnecting medical practices to the humanities, the social sciences, the arts and philosophy. At the heart of this attempt is the word narrative, story-telling and listening to stories.

Biomedical Ethics, Phenomenology and Cinema :

Medical ethics is on the whole dedicated to a deeper understanding of the conditions of treatment, from the point of the doctor, the patient, medical staff and environment. It is in this deeper understanding in the state of life, the minds of the treated and the caregivers as well as the environments of life and treatment that medicine takes a narrative turn. States of mind are stories constructed by ourselves, who we are on a day to day basis; environments are relationship stories we tell ourselves with the spaces we inhabit. There is a literary term for the latter - the pathetic fallacy, where humans fantasize that spaces and objects around us contain our feelings. Although they do not, it is a fantasy that we cannot live without, we need to imagine that the room we sit sitting in is protective of us and it will not cave in the next moment, although there is no such guarantee. Aesthetics of building are as much built solid things as they are filled with magical make-believe layers that are supposed to make us feel safe inside buildings-colour schemes, vistas of vision or channels of air circulation. Avoid corners that might look sinister and so on. Thus environment is not very different from romantic love, indeed the expressive body of the lover is a protective environment of sorts for us. It is not without reason that in cinema, environment is used as a shorthand for romantic feelings. Environment therefore is supposed to be on the whole on the Eros side of our libido, a romantic film. A horror film is nothing but the pathetic fallacy falling apart and environment becoming Thanatos, the Death Drive, where the fantasy of a protective environment fails.

In a sense therefore, medicine takes an environmental turn too alongside the narrative turn- our voice, cadence of speech, touch of the patient, distances between bodies, the makeup of a room, the garden outside the hospital, the design of recreation rooms, or even the furniture, instruments, machines and prosthetics in direct treatment, all in some senses come together to

produce an environment. Medical Humanities updates a thing that physicians and medical workers have always known- the environmental nature of medical work - to the newest levels of thinking along these lines. It also has the virtue of uniting all this under one umbrella to convey a holistic understanding of things that we took for commonsense or studied in old school ways in Social Medicine. This is a welcome turn- the turn away from the positivism and State-dictated developmental utilitarianism where a mean and at most standard deviations from the mean determined a one formula-for-all, from housing to hospital buildings. Here we are taking another turn, an aesthetic turn, towards a human mind that demands more than just the basic minimum. More importantly, we are jettisoning the idea that every human is a standardized mean of statistical data that works without fail. The routinization of treatment, architecture and healthcare led to problems verging on failure for medical regimes arising from disinterest and lack of adaptability over a period of time. Thus, medical humanities is tuned on the whole towards creating treatment regimes that are ethical but also flexible and more substantially humane, catering to cultural realities of patients- race, gender, religion, age, regionality, class, caste etc. but also their artistic needs, their aesthetic dispositions.

However, where Medical Humanities needs to go ahead is to establish good practice on a more stable foundation of the serious matter underlying all this, indeed a more scientific and philosophical foundation of what underpins them. Otherwise, the techniques and methods of the Humanities will become yet another set of actions and methods to be rote-memorized and therefore open to routinization and failure once more. At the philosophical heart of the Medical Humanities is something called phenomenology, the study of phenomena - the world consisting of phenomena that make our minds and our bheaviour as phenomena in the world, a discipline that straddles mathematics and philosophy equally. The phenomenological revolution at Marburg in Germany in the 19th century would revolutionize knowledge and convert the humanities into the social sciences. Without phenomenology we would not have sociology, anthropology, the modern history of art, the mental sciences, Einstein's Theory of Relativity or modern assembly line machine-driven production of goods, modern architecture and much more. A cricket ball coming at me presents for my mind a phenomenon where colour, shape, size, weight, outline, vectors of movement etc. all constitute the 'scientific'/'mental' ball that I have to deal with. Similarly, a planet is a larger ball where the same kinds of parameters if measured will tell me what the 'nature' of the planet is. Phenomenology converts all matter into sensible matter with properties which then determine how our minds perceivethings as well as the properties studied to the last detail around multiple parameters that then leads to a more skillful use of matter in things we make and use. Thus, it oscillates between aesthetic qualities such as colour, shape, size, weight, outline etc. and hard scientific data- surface tension, gravity, momentum, speed and so on.

Thus it becomes clear that the study of space, the objects within it, the people and their behaviour withn it and how they interact is what

phenomenology studies best. Or rather, when we are considering all this we are doing phenomenology - even the timbre of our voice studied for its effect on the human mind is a phenomenological object of study. In short, whatever is the substance of the Medical Humanities is on the whole a subtext of phenomenology. And it is for this reason that studying the scientific and philosophical basis of the discipline via a proper grounding in phenomenology is an absolute necessity if the Medical Humanities need to drive home to its practitioners the seriousness of what is at stake in what they are doing. The stakes are high science - this is stuff that founds the basis of quantum physics and our current scientific reality, not just techniques and methods to be memorized. That this is sophisticated science and philosophy. Practitioners of the discipline need to understand that they work in a world that is alive with actions and properties that are composing the minds of everyone concerned- the doctor, the patient, the nursing staff, family members of the patient and so on. It is not a world to be memorized and fixed once and for all, it is a shifting ground that changes meaning with the trajectory of the sun during the day.

In concluding this section, I shall mention three aspects of the social sciences founded upon phenomenology that Medical Humanities need to take special care about- sociology/ anthropology, psychonalysis and architecture and cinema. What doctors and medical workers do is an ethnographic/sociological exercise and nothing else. Just as an anthropologist goes to a village and stays there for a long time taking interviews of people to figure out what symbols and values constitute a society, similarly the doctor's case history has to be in the era of Medical Humanities something of the ethnographers field notes that takes in as many dimensions of a patient's life as is possible. Indeed, training doctors of the future with anthropologists is a must if medicine has to be creative as well as ethical. Anthropology demonstrates that ethics is not a standardized set of values true for everyone, instead ethics is made up of aesthetic values, a sense of holistic well-being of the sensious human in an life world (what the Germans call Gestalt). What is admissible as a good object and therefore ethical in one society will not be admissible in another. Ethics is therefore all about knowing as much social rules and norms as it is about a patient's preference for colour, sounds, stories, movies, sense of humour, sexual desire, the food they like, the landscapes they prefer, the built spaces they gravitate towards and so on. In tribal societies an outsider might be cooked and eaten up if they spoke in a certain tone. This is to emphasize the aesthetic turn necessary for medical practice of our times via the Medical Humantities.

Next, if medical practitioners need to understand the minds of those whom they have been given the charge of, then they have to understand the mind of their charges beyond the subtle intangibilities of aesthetics - they have to understand states of minds via the symbolism of behaviour and spoken words, in short, stories. Nothing trains a physician better to listen than the draconian regime of the psychoanalyst's techniques of listening to the narratives of the analysand. Psychoanalysis is a magical practice,

where Freud would speak of capturing internal objects that make up our psyche, the word object being a direct reference to psychoanalysis' birth in phenomenology. The magic lies in the fact that these objects have to be grasped by the mind merely by listening to the analys and and nothing more. The object is formed as much in the tenor of the voice, interruptions, changes of voice patterns, bodily distance conveyed through voice throw etc. as from the more tangible content of dreams and life experiences. Every medical patient comes to a physician with their internal objects in place in their voices that create the personality of the patientand the stories they tell us convey these internal objects to us through which we gauge what these stories mean in terms of who they are and their expectations from us. Indeed, every malady is a psychological affair, but rather than treat this through the soft phenomenology of psychology I propose that this bedone in the hard (object) phenomenology of psychoanalysis. In its intimate analysis of long stories, rather than just as symptomatology. This is to emphasize the narrative turn necessary for medical practice of our times via the Medical Humantities. But above all, psychoanalysis is where phenomenology turns from being hard science to becoming a philosophy, it deals with our desires, our thoughts, moods, nature, personality and above all our philosophical value systems as they condition our basic behaviour- even our gait, for example.

Finally, I would like to emphasize a point that I have made earlier already at some length - that architecture is the great metaphor of our times to convey an environmental attitude to everything we do - starting from our relationships to our professional lives and above all for understanding what environment needs to be 'constructed' for patients and health workers and all else (even machines) for the successful practice of what the Medical Humanities aim at. Indeed, at the end of the day, all phenomenology is environmental - the discipline seeks to figure out how the world, the environment, we live in affects our mind psychologically and the ways in which we react to the world and do the things we do. All phenomenology added up is nothing but the holistic environment we are. Beyond that, phenomenology helps us understand our environment architecturally - the environment we percieve ourselves living in is not raw environment but one that has a specific architecture constructed according to our needs. And which form of the arts and sciences gives us readymade data about human life lived spaces, about the environmental architecture of our lives, but cinema. Cinema then becomes that great tool for phenomenological study of our lives lived in the world as we see it…well almost. The more the cinema of our times seeks to break down the boundaries between documentary reality and the cinema of human emotions, stories and desires, the more cinema starts to become raw data to understand how environment affects the human organism and vice-versa. Cinema gives us total environments of human lives which no other artistic or scientific medium can give us. Cinema is where open and boundless environment is worked upon by an invisible architect to present to us the lived dynamics of a lived environment. And indeed, if this para is about emphasizing the environmental turn necessary for medical practice of our times via the Medical Humantities,

then one might qualify this further that this turn could also be qualified as a cinematic turn that encapsulates within it environment and architecture. To do good Medical Humanities one would have to do good cinema.

Recommended Readings :

Phenomenology and Medicine

- S K Toombs, The Hand book of Phenomenology and Medicine, Dordecht: Kluwer Academic Publishers, 2001.
- Frederik Svenaeus, Phenomenological Bioethics: Medical Technologies, Human Suffering, and the Meaning of Being Alive, Oxford: Routledge, 2018.
- Frederick Svenaeus, The Hermeneutics of Medicine and the Phenomenology of Health, Dordecht: Springer-Science, 2001.
- Havi Carel, Phenomenology of Illness, Oxford: Oxford University Press, 2016.

Architecture and Medicine

- Andrej Radman and Heidi Sohn (eds), Critical and Clinical Cartographies: Architecture, Robotics, Medicine, Philsophy, Edinburgh: Edinburgh University Press, 2017.
- Andrej Radman and Stavros Kousoulas (eds), Architectures of Life and Death: The Eco-Aesthetics of the Built Environment, Lanham, MD: Rowman & Littlefield, 2021.
- Timothy Beatley, Carla Jones and Reuben Rainey (eds), Healthy Environments and Healing Spaces: Practices and Directions in Health, Planning and Design, Charlottesville: University of Virginia Press, 2018.

How to Write A Paper

Ranjan Raychowdhury

Abstract :

The strict linking of good quality publications to faculty appointments by the National Medical Commission has seen increased interest amongst trainees and junior faculty as to how to go about actually writing a paper. The author was asked to speak on this subject at a recent National meeting. General guidance and tips regarding each section of a medical science publication is provided.

The publication of scientific papers has been the traditional method of dissemination of advances in medical science. In North America and Europe much stress is laid upon publications during specialist training, and appointment and promotion of faculty at teaching institutes. The Medical Council of India (MCI) and the National Board for Examinations (NBE) both included preparation of a thesis /dissertation as an integral part of the MS/MD/DNB curricula, with the idea being that this would inculcate a rational, scientific approach in the trainees[1]. The MCI, in its later years, began to lay emphasis on publication in the so-called "Indexed" journals for appointment of teachers in Medical Colleges[2], and this has been continued by its new avatar, the National Medical Commission.

With the strict linking of good quality publications to faculty appointments there has been increasing interest amongst trainees and junior faculty as to how to go about actually writing a paper, in the hope of overcoming the tough publication criteria of indexed medical journals. As Editor of the Journal of the Vivekananda Institute of Medical Sciences I was asked to speak on how to write paper, as part of a symposium at the 7th annual conference of the Indian Academy of Otorhinolaryngology Head & Neck Surgery held in Guwahati in November 2021. This paper is based upon that presentation.

Which Journal?

The very first decision to be made is which journal you wish to submit the paper to. Every journal has its own specific instructions regarding preparation of the submission. These are usually based upon the recommendations of the Vancouver group – the International Committee of Medical Journal Editors[3]. These include the font and spacing to be used in manuscript preparation, the number of words for the various type of papers (case reports, letters to the Editor, review articles, original papers), the number of figures and illustrations and so on. Each journal will also specify the style or system of listing of references. It is very important that the instructions are correctly followed; submitting a manuscript which is prepared in a different style indicates to the reviewers and editors that it was originally submitted elsewhere and their journal is not the first choice.

What Type of Paper?

Generally speaking, papers fall into the following categories : original articles, review articles, case reports, technical reports and letters to the Editor. Original articles describe original research, which may be clinical or basic, and clinical trials. In

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the Indian scenario the easiest original paper to prepare is one based upon a postgraduate thesis or dissertation. This, of course, assumes that the thesis is based upon a proper scientific study, looking at something new. Most high standard, indexed journals will not accept review articles unless they themselves have asked an expert to review a subject. Similarly they will not accept single case reports; a case series of a rare condition or highlighting a new method of treatment or diagnosis may be accepted. Technical reports describe a particular way of performing a procedure, which may be new or unique. Letters to the Editor refer to a previous publication and provide an opportunity to agree or disagree with a published paper. They are often more challenging to write then any other paper.

The Title :

A well thought out and catchy title will draw attention to the paper, and may help it stand out amongst other similar quality submissions. Consider each of the following titles for the same imaginary paper :

"A comparative study of Endoscopic Vs Microscopic surgical outcomes in 80 cases of WCW syndrome in a single Tertiary Centre – our experience".

"Endoscopic management of WCW Syndrome – a new perspective?"

"Improved outcomes in WCW syndrome – a paradigm shift".

Arguably the second or third title would be more likely to interest a reader in to looking at the paper rather than just skimming through the abstract.

The Literature Search :

A systematic search of the literature is an essential step in the preparation of any medical paper and should ideally be performed before attempting to write the paper. Once the idea for a paper is formulated, looking at what has been recently published on the topic often helps clarify how original your study and findings are, and also may help develop the idea in a better way.

Pubmed Central is an excellent resource which is freely available on the Internet, and provides an often bewildering number of paper references. Carefully consider the search terms you use to extract the most relevant papers. Google scholar is another useful search engine. Always try and download the full reference papers – do not depend upon just the abstracts. This, of course, raises the question of download charges. Contact colleagues to see if anyone has free access via an Open Athens account. Speak with your Institutes library staff, as there may be an Institutional subscription you can avail of. For surgical trainees it is worth becoming an Affiliate member of the Royal College of Surgeons of Edinburgh or England. This costs about Rs. 2000 a year but allows you use of the College libraries (amongst other benefits), which will be able to obtain any paper you need. Once you have 5 or 6 recent reference papers, look at the references cited by their authors for further background articles.

Order of Composition :

Scientific publications usually follow the IMRaD format; this refers to the main sections of the paper : Introduction, Methods, Results and Discussion[4]. To these are added an abstract and a conclusion. The order in which I usually write a paper based upon an original study is as follows: aims and objectives, methodology and results, discussion, introduction, conclusions and abstract.

There is no hard and fast rule as to the order you may find easiest.

Aims & Objectives :

If you are writing up a study you have performed or participated in, the aims and objectives are usually well described in the study protocol. It is important to ensure that the methodology and results tally with the stated aims and objectives.

Methodology & Results :

Make sure your study is what it claims to be. If you call it a randomised study you must describe the method of randomisation you used, and any blinding. The results you mention must tally with the aims and objectives of the study. The statistical tests used must be appropriate for the study design (consult a statistician if necessary), and it is always a good idea to attach the full calculation as an annexure. If you state that your result is statistically significant, please make sure it actually is, which includes having enough subjects in the study and control groups to allow meaningful calculation.

Discussion :

You should discuss your findings and/or observations in comparison with the results of your reference papers. If you think you have a unique result discuss why it is so. Very few papers have no weaknesses in study design or methodology, so discuss the reasons for any obvious drawbacks. If your results are markedly different from those of previously published similar studies, explain why this might be so. This part of the paper can be the most difficult to write, as it can easily become a rambling discourse and lose the attention of the reader.

Introduction :

Once the methodology, results and discussion are written it is relatively easy to write the Introduction. This should be a paragraph or two to inform the reader what your paper is about. What is the condition? Who first described it? What is the current gold standard investigation and/or management? What controversies or grey areas remain that you are addressing by your study? Keep the introduction brief and to the point.

Conclusions :

The conclusions should be supported by the results of the study and the analysis. They must agree with the title. For example, if you say you are comparing a microsurgical procedure with an endoscopic procedure, you cannot conclude that they are better than open surgery. Also try to avoid concluding that a further study is required to answer the research question you raised.

Abstract :

The abstract is a brief summary of the entire paper, so is best written once the entire paper is written. Most journals require structured abstracts where a few lines are required under each IMRaD heading.

General Tips :

Common word processing programs such as Microsoft Word have a spelling and grammar checking function, and it is always a good idea to use this on the entire manuscript. If you are not a fluent English speaker ask a friend or colleague who is to read the manuscript draft and ensure that there are no errors of tense or syntax. Do not write your paper by cutting and pasting paragraphs from your reference papers – this is easily apparent and will result in rejection of your manuscript by the journal. It is always a good idea, once the paper has been written, to

put it away for a few days then read it again. This helps identify repetitive use of the same words and phrases.

Rejection :

Do not be disheartened by rejection. Read the comments of the reviewer(s) carefully – they often make very helpful suggestions on what corrections are necessary to improve the quality of your paper. You can then either rewrite and resubmit your manuscript, or try a different journal, having changed the style of the manuscript to fulfill the author instructions of the new journal.

To write a paper usually takes time and a lot of energy, but publication in a reputed journal, and recognition as being the author of a good study, can be very satisfying. The skills required to formulate a research question, conduct a thorough literature search and correctly analyse a result in relation to the existing literature, will inform your clinical practice and help you deliver rational, evidence based management to your patients.

Disclosures :

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3. International Committee of Medical Journal Editors. Uniform requirements for manuscripts submitted to biomedical journals. Ann Internal med 1997; 126(1) : 36 - 47.
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