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Roadside Welders in Ajegunle

Biochemical and Hormonal Profile

Highlights

Muscle and Articulation Chains

Detect Polyethylene Terephthalate

Discovering Thoughts, Inventing Future

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Can the Godelieve Denys-Struyf (GDS) Muscle and Articulation Chains Method Help in the Treatment of Hyperventilation?

By Heleno Almeida Júnior, Renata Ungier de Mayor & Alexandre de Mayor

Introduction- Breathing is the most vital function in living beings. When breathing happens in a disordered manner in human beings, that may be the first sign that we are experiencing some dysfunction, whether mechanical, physiological, or psychological (CLIFTONSMITH and ROWLEY, 2011).

One respiratory dysfunction that gets scientific attention due to its complexity is the hyperventilation syndrome (HVS). This syndrome is characterized by a set of somatic symptoms induced by inadequate hyperventilation, which may be reproduced completely or partially, by voluntary hyperventilation (RAPIN et al., 2017). According to Lum (1987), hyperventilation may have symptoms similar to asthma. Therefore, it is necessary to distinguish one of the other, as the treatment of hyperventilation is curable and the procedures for achieving successful treatment differ in approach, mechanisms, and orientation. However, the lack of studies that state treatment efficacy is still a problem (RAPIN et al., 2017; VIDOTTO et al., 2019).

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Can the Godelieve Denys-Struyf (GDS) Muscle and Articulation Chains Method Help in the Treatment of Hyperventilation?

Heleno Almeida Júnior [α], Renata Ungier de Mayor [σ] & Alexandre de Mayor [ρ]

I. Introduction

Breathing is the most vital function in living beings. When breathing happens in a disordered manner in human beings, that may be the first sign that we are experiencing some dysfunction, whether mechanical, physiological, or psychological (CLIFTONSMITH and ROWLEY, 2011).

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HVS may be due to organic or physiological conditions, but its main cause may be related to psychological and behavioral factors (VIDOTTO et al., 2019). Increasingly, in our society, we find case reports of people suffering from anxiety, depression, perfectionism, feelings of inferiority, and others who, usually in times of crisis, may be associated with respiratory disorders such as hyperventilation. Thus, Vidotto et al. (2019) even suggest that it is necessary to create a multidimensional holistic assessment (biochemical, physiological, social, psychological, respiratory symptoms) for the accurate diagnosis of respiratory dysfunction. In this sense, the treatment proposed for HVS should also address the multidimensional holistic aspect, in order to evaluate its effectiveness.

The Muscle and Articulation Chains - G.D.S. Method - (Godelieve Denys-Struyf) is a non-investigated method for HVS that deserves attention. It is a global method of physical therapy and behavioral approach, created by the Belgian physiotherapist Godelieve Denys-Struyf in the 1960s (CAMPIGNION, 2003). More specifically, the work developed by her disciple, the French physical therapist Philippe Campignion, highlights the influences of biomechanical, psychological, behavioral and physiological aspects on breathing, respecting the individuality of each individual (CAMPIGNION, 1998).

Therefore, the present study aims to highlight, based on the available scientific evidence, how G.D.S. can collaborate as a treatment of HVS and bring new perspectives on the subject.

II. Methods

It is a systematic literature review. We used the keywords "hyperventilation," "respiratory dysfunction," "exercise," "psychological-behavioral," "GDS method" in Pubmed® and Scielo® databases in Portuguese, French, Spanish, and English, considering articles of the last ten years. Most recent and mentioned review or experimental papers were selected, with at least two of the keywords searched in the present study.

III. Results

Except for the keyword "G.D.S method," which only led to two articles, all others presented numerous papers screened according to the methodology adopted in the present study (Table 1). Thus, we highlight the originality of the present study, since, so far, no investigation had been done correlating these keywords or themes.

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Table 1: Top recent and most mentioned articles

Author	Title	Conclusion
Bradley and Esformes, (2014)	Breathing pattern disorders and functional movement	"These results demonstrate the importance of diaphragmatic breathing on functional movement. Inefficient breathing could result in muscular imbalance, motor control alterations, and physiological adaptations that are capable of modifying movement. These findings provide evidence for improved breathing evaluations by clinicians."
Depiazziand Everard, (2016)	Dysfunctional breathing and reaching one's physiological limit as causes of exercise-induced dyspnoea	"Clarity in our approach to dysfunctional breathing is vital if funding is to be made available for high-quality studies designed to identify the prevalence and the potential healthcare cost-saving and improvements in QoL that would follow from accurate assessment and intervention."
Díaz-Arribas et al., (2014)	Effectiveness of the Godelieve Denys Struyf (GDS) Method in People With Low Back Pain: Cluster Randomized Controlled Trial	"The improvement in disability was slightly higher with group GDS sessions than with the program routinely used in clusters within the SNHS. Adding individualized GDS sessions eliminated this advantage. Further studies should compare GDS with other types of exercise."
Jones et al., (2013)	Breathing exercises for dysfunctional breathing/hyperventilation syndrome in adults.	"The results of this systematic review are unable to inform clinical practice, based on the inclusion of only one small, poorly reported RCT. There is no credible evidence regarding the effectiveness of breathing exercises for the clinical symptoms of DB/HVS. It is currently unknown whether these interventions offer any added value in this patient group or whether specific types of breathing exercise demonstrate superiority over others. Given that breathing exercises are frequently used to treat DB/HVS, there is an urgent need for further well designed clinical trials in this area. Future trials should conform to the CONSORT statement for standards of reporting and use appropriate, validated outcome measures. Trial reports should also ensure full disclosure of data for all important clinical outcomes."
Kim et al., (2019)	Effects of elastic band resistance exercises with breathi ng techniques on pulmonary function in female seniors.	"The results show that resistance accompanied by breathing techniques positively affects senior respiratory function when an elastic band is used for exercise."
Puppin et al., (2011)	Stretching in nonspecific chronic low back pain: a strategy of the GDS method	"Stretching exercises, proposed by the GDS muscular and articular chain method, were effective in reducing pain, functional disability, and increasing overall flexibility, but it did not improve the ability of the transverse abdomen to contract in patients with chronic and unspecific low back pain. "
Rapin et al., (2017)	Which treatments for the hyperventilation syndrome in adults?	"In practice, it provides learning about abdominal ventilation and respiratory rate regulation. Coupled with personalized therapeutic education, it seems to be the most appropriate technique. Other clinical studies are needed. "
Szulczewski, (2019)	Training of paced breathing at 0.1 Hz improves CO_2 homeostasis and relaxation during a paced breathing task	"The obtained results showed that training paced breathing at 0.1 Hz led to decrease in hyperventilation. Furthermore, the present study suggests that training paced breathing is necessary to make the task more pleasant and relaxing."
Vidotto et al., (2019)	Respiratory Dysfunction: What Do We Know About it?	"Finally, the treatment of patients with RD needs to be further investigated, not only because of the lack of a diagnostic tool that allows consistent recruitment of participants but also because of the scarcity of RCTs that test well-defined protocols for this group of patients."

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Zaccaro et al., (2018)	How Breath-Control Can Change Your Life: A Systematic Review on Psycho-Physiological Correlates of Slow Breathing	"Slow breathing techniques act enhancing autonomic, cerebral and psychological flexibility in a scenario of mutual interactions: we found evidence of links between parasympathetic activity (increased HRV and LF power), CNS activities (increased EEG alpha power and decreased EEG theta power) related to emotional control and psychological well-being in healthy subjects."

Note: QoL= quality of life; GDS = Godelieve Denys Struyf; SNHS = Spanish National Health Service; DB/HVS = Dysfunctional breathing/hyperventilation syndrome; RCT = randomised controlled trial; CONSORT = Consolidated Standards of Reporting Trials; EEG = Electroencephalography; HRV = Heart Rate Variability; LF = Low Frequency; CNS = Central Nervous System

IV. Discussion

The biochemical components and physiological effects of the hyperventilation syndrome are well understood by the authors in their articles, even in previous studies such as George's, (1964), Lum's, (1987) and Chaitow's, (2004).

Hyperventilation causes an increase in ventilation rate. The exhalation rate of carbon dioxide (CO_2) exceeds the accumulated rate in tissues, causing a decrease in CO_2 and an increase in body pH, producing respiratory alkalosis (CHAITOW, 2004). According to Chaitow (2004), this induces vasoconstriction, decreasing blood flow and inhibiting hemoglobin transfer (from oxygen to cell tissue due to the Bohr effect), and inevitably muscles end up being affected by fatigue, dysfunction, and trigger points.

On the other hand, some authors show different opinions about the relationship between psychological and behavioral factors and hyperventilation. Lum (1987) addresses the behavioral factors as symptoms caused by hyperventilation, i.e., a somatopsychic pathway. Vidotto et al. (2019) discuss a psychosomatic one, where psychological and behavioral factors would be the main causes of hyperventilation. Regardless of the route, everyone should consider psychosomatic aspects, from biomechanical dysfunction to unstable emotions to resolve hyperventilation. Perhaps this is why some studies such as Jones et al. (2013) did not find lots of clear and positive results about exercise in the treatment of hyperventilation.

According to Rapin et al. (2017), the most appropriate technique apparently would be abdominal ventilation with respiratory rate regulation, combined with an individualized therapeutic education. According to Campignion (1998), however, only abdominal ventilation happens only when the body adopts a resting breath. In this sense, it is paramount to adopt some relaxation or even reprogram the mechanical ventilation at the most active moment as well. There are several breathing techniques and approaches aimed at improving ventilation. In hyperventilation, according to Szulczewski (2019), the slow breathing exercise favors the reduction of the picture. Still, not all people can breathe slowly because of mechanical difficulties, making something that should be pleasurable to accomplish, something unpleasant.

Philippe Campignion has developed his extensive work on the physiology of respiratory mechanics from a range of concepts. Based on Françoise Mézières's maxim, "Breathing is not taught or learned, it is released," as well as Godelieve Denys-Struyf's work on muscle and articulation chains. Her view that "each individual adopts a body attitude that is his or her own and derives from his or her psychological and behavioral experience" was the starting point for the study of the relationship between different postures and respiratory biomechanical behavior, taking into account the associated morphological diversity, especially regarding the shape and positioning of the chest. She then established the different respiratory typologies described in her work: chest blocked in inspiratory position, chest with large anteroposterior diameter, paradoxical chest with a small anteroposterior diameter and large lateral diameter, chest expired or chest with small diameter, asthenic chest (CAMPIGNION, 1998). Philippe Campignion uses these concepts for both evaluation and exercise proposal for each typology, respecting the individuality of each patient. The purpose of this approach is to release mechanical barriers, if there is any, and to reprogram the well-coordinated mechanics, thus contributing to proper respiratory physiology.

Biomechanical aspects are also fundamental in his work, as she reports the predispositions in case of the permanence of mechanical barriers and the relationship between the diaphragm and the visceral system (CAMPIGNION, 1998). This information is interesting because gastrointestinal and circulatory dysfunctions and other problems that may arise concomitantly with hyperventilation may be of psychological and behavioral origin, with biomechanical consequences.

This view stimulates future research, as there are still scientific gaps on the subject of hyperventilation, evaluation, and appropriate exercise. In the same way, it is relevant the need for more scientific investigation Philippe Campignion's approach, given the lack of articles on such an important subject. This proposal not only should include research on individual work but also on group work.

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It is necessary to highlight that the comprehension of the human being in its totality may bring answers or solutions to the most diverse disorders. The perspective addressed in the present study is confirmed by what the authors presented here highlighted about hyperventilation. It is increasingly important to conduct studies on hyperventilation that consider the complexity of the human being and the intrinsic and extrinsic influences, both in his or her life as a whole and in the specific moment in which the pathology affects him or her.

V. Conclusion

Despite the approach of the Muscle and Articulation Chains - G.D.S. Method in the treatment of HVS seems promising; experimental studies are needed to prove its effectiveness.

References Références Referencias

1. CliftonSmith T., Rowley J. Breathing pattern disorders and physiotherapy: inspiration for our profession. Physical Therapy Reviews. 2011; 16: 75-83.
2. Bradley H., Esformes J. Breathing pattern disorders and functional movement. Int J Sports Phys Ther. 2014; 9(1): 28-39.
3. Campignion, P. Aspectos Biomecânicos: cadeiasmusculares e articulares - método G.D.S.: noçõesbásicas / Philippe Campignion; tradução Maria Lucia Campello Hahn. São Paulo: Summus, 2003.
4. Campignion, P. Respir-Ações/Philippe Campignion; tradução Maria Lucia Campello Hahn. São Paulo: Summus, 1998.
5. Chaitow L. Breathing pattern disorders, motor control, and low back pain. Journal of Osteopathic Medicine, 2004; 7(1): 34-41.
6. DepiazziJ., Everard M. L. Dysfunctional breathing and reaching one's physiological limit as causes of exercise-induced dyspnoea. Breathe (Sheff). 2016; 12(2): 120-9.
7. Díaz-Arribas M. J., Kovacs F. M., Royuela A., Fernández-Serrano M., Gutiérrez-Fernández L, etal. Effectiveness of the Godelieve Denys Struyf (GDS) method in people with low back pain: cluster randomized controlled trial. Phys Ther. 2015; 95(3): 319-36.
8. George S. Changes in serum calcium, serum phosphate and red cell phosphate during hyperventilation. New Engl J Med. 1964; 270: 726-728.
9. Jones M., Harvey A., Marston L., O'Connell N.E. Breathing exercises for dysfunctional breathing/ hyperventilation syndrome in adults. Cochrane Database Syst Rev. 2013; 31(5): CD009041.
10. Kim K., Han J. W., Kim Y. M. Effects of elastic band resistance exercises with breathing techniques on pulmonary function in female seniors. J Exerc Rehabil. 2019; 15(3): 419-423.
11. Lum L. Hyperventilation syndromes in medicine and psychiatry. Journal of the Royal Society of Medicine. 1987; 229-231.
12. Puppin M.A.F.L., Marques A. P., Silva A. G., FuturoNeto H. A. Stretching in nonspecific chronic low back pain: a strategy of the GDS method. Fisioterapia e Pesquisa. 2011; 18(2): 116-21.
13. Rapin A., Deslee G., Percebois-Macadre L., Jonvel A. C., Demangeon S., Boyer F. C. Which treatments for the hyperventilation syndrome in adults?. Rev Mal Respir. 2017; 34(2): 93-101.
14. Szulczewski, M. T. Training of paced breathing at 0.1 Hz improves CO_2 homeostasis and relaxation during a paced breathing task. PLoSOne. 2019; 14(6): e0218550.
15. Vidotto L. S., Carvalho C.R.F., Harvey A., Jones M. Disfunção respiratória: o que sabemos?.J Bras Pneumol. 2019; 45(1): e20170347.
16. Zaccaro A., Piarulli A., Laurino M., Garbella E., Menicucci D., Neri B., Gemignani A. How Breath-Control Can Change Your Life: A Systematic Review on Psycho-Physiological Correlates of Slow Breathing. Front Hum Neurosci. 2018; 12: 353.

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Bite to Bytes...Transition towards Electronic Dental Records- A Review

By Dr. Santanu Sen Roy, Dr. Ritika Bhambhani & Dr. Ipsita Maity

Abstract- Patient health records (both dental and medical), if accurately maintained not just help in better clinical decisions for the welfare of the patient but also have legal and other security benefits for the doctor. As digitization has paved its way in every stream, the same has occurred to maintaining of patient records, which when electronically controlled are termed as the Electronic patient records (EPR) or Electronic dental records (EDR) or Electronic medical records (EMR) pertaining to the dental details or the medical respectively. They would provide the advantages of well maintained paper records with benefits of cross-referencing the data by consulting specialists and help to integrate the medical and dental fraternity.

The use of EDR is more widespread internationally in US and European countries compared to the developing ones. Many challenges do exist for a complete transition, including financial restraints, skill development, confidentiality of records and their standardization. In developing countries demographics makes it more difficult to apply the EDR but efforts are ongoing.

Keywords: electronic dental records, electronic patient records, electronic health records, digitized records, paperless office/clinic, teledentistry, HIPAA, DISHA, NeHA.

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Dr. Santanu Sen Roy [α], Dr. Ritika Bhambhani [σ] & Dr. Ipsita Maity [ρ]

Abstract- Patient health records (both dental and medical), if accurately maintained not just help in better clinical decisions for the welfare of the patient but also have legal and other security benefits for the doctor. As digitization has paved its way in every stream, the same has occurred to maintaining of patient records, which when electronically controlled are termed as the Electronic patient records (EPR) or Electronic dental records (EDR) or Electronic medical records (EMR) pertaining to the dental details or the medical respectively. They would provide the advantages of well maintained paper records with benefits of cross-referencing the data by consulting specialists and help to integrate the medical and dental fraternity.

The use of EDR is more widespread internationally in US and European countries compared to the developing ones. Many challenges do exist for a complete transition, including financial restraints, skill development, confidentiality of records and their standardization. In developing countries demographics makes it more difficult to apply the EDR but efforts are ongoing. This narrative review discusses the various systems of EDR, their benefits and functioning, and also the hindrances in path of their acceptance.

Keywords: electronic dental records, electronic patient records, electronic health records, digitized records, paperless office/clinic, teledentistry, HIPAA, DISHA, NeHA.

I. Introduction

It's a known fact that our lives are getting dependent on technology and digitization, and perhaps why not, there are endless advantages to it. Even the present day dental practice is closely linked to the utilization of computer-based technology. The Digitization has paved its way towards the diagnostic and treatment procedures in health sciences. Digitization refers to "capturing an analog signal in a digital form or representing any object by a discrete set of points, could be an image, sound or a document" [1]. In today's technology based life, smart phones have brought almost everything at the user's fingertips; where it is possible to access and achieve almost anything even when on a move. How could the medical and dental fraternity hence stay unaffected for long? With the use of digital techniques in almost all spheres, it had to seek application in maintaining medical/dental records.

Dental or medical records have always been a challenge to maintain. Updating them, reproducing the older records and sharing them has been difficult. As the name suggests the electronic records are patients' details managed electronically without physically handling the paper files. They have also been termed as computer based records [2]. The paper files would result in a bulk of endless files in a dental set up. On the contrary digitization of the same would offer multiple advantages like ease of storing and referring back, portability of patient's information, interoperability, integration within fraternity, patient participation and of course paperless offices. This is hence a patient friendly, operator friendly and environment favoring methodology and in turn promotes better practice management [2,3]. But no change comes easy; this transition has obvious disadvantages of greater costs involved and its use also is largely affected by demographics. Widespread use of electronic record softwares has become inevitable in United States of America and many European countries, considering the benefits. Multiple steps have been taken by their respective governments for the needed implementation. [4, 5]. But at the same time greater challenges are to be faced especially in developing countries like ours.

The review aims to include the benefits of EHR, its applications, limitations, needed standards and the hindrances to achieve the same.

II. The History and Development of Present Systems of EHR

Dr. Lawrence L. Weed was one of the pioneers to mention about an automated system to reorganize patient medical records. With the initial efforts of physicians and the IT experts, the PROMIS project was used in 1967 at the University of Vermont. The project aimed towards a timely and sequential access to patient data, enabling rapid collection of data for epidemiological studies, medical audits and business audits. Based on the above a Problem-Oriented Medical Record or POMR was formed in 1970 and was first used in a medical ward of the Medical Center Hospital of Vermont. Touch screen technology had also been incorporated into data entry procedures; other options like detailed drug information were added to the core

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program, for permitting a check on drug actions and interactions, dosages, side effects and allergies. During the 1970s and 1980s, various academic and research institutions refined electronic medical record systems. These include- a hospital-based 'Technicon system', 'Harvard's Costar system' for ambulatory care, 'The HELP system' and Duke's 'The Medical Record' are some examples of early inpatient care systems; 'Indiana's Regenstrief record' was among the earliest combined inpatient and outpatient systems [6, 7]. The technical boom of the 1990sincluding the advancements in computer and diagnostic applications further helped to spur the growth of electronic medical record systems in medical practices [4].

The application of EHR in medical practice is at a greater pick up than dentistry. The American dental Association (ADA) recognizes 'Dental Informatics' as a separate specialization within Health Informatics; which is a multi-disciplinary field that seeks to improve health care through the application of health information technology (HIT). The use would finally have an impact on health information management, health care administration, research, information gathering and synthesis, and knowledge sharing [8,9]. The use of this technology interests both the academicians and even practitioners. The students need to be exposed to the new technologies so as to keep them abreast with the growing demands of practice; also the research and many longitudinal studies come handier with such digital records. The birth of 'Teledentistry' is also closely related to the advent of digitization in dentistry.

The National Institute of Health and Medicine, USA in 1991 mentioned the greater need of adapting to EDR. The national health library too has been a major participant in this development. In 2009 the US Congress and Obama administration offered benefits to the health care community for promoting use of EHR. The HITECH i.e. Health Information Technology for Economic and Clinical Health Act, authorized incentive payments through Medicare and Medicaid to clinicians and hospitals who started to use electronic records [8,4]. The above mentioned Act was promoted as an element of the *American Recovery and Reinvestment Act (ARRA) 2009.*

The British government aimed for modernization of National Health Services under a program termed the 'BIG BANG approach' and has been one of the largest IT procurement plan. In Canada a similar agenda as 'INFOWAY' was started in 2001 and in Australia as 'HEALTH CONNECT' was begun [2,10]. INFOWAY is a not for profit organization funded by federal governments, working mainly to accelerate the development, adoption and effective use of digital health across Canada.

The ministry of Health and Family welfare (MoH & FW), India also notified the EHR standards for India in 2013, which were later revised in 2016[11].

a) Existing Systems

The development of EHR includes the collaboration of IT individuals, health care professionals and government officials. EHR is "electronic record of health related information of an individual that conforms to nationally recognized interoperability standards and can be created, managed and consulted by the authorized clinicians and staff across more than one health organization". The basic purpose of such softwares has been to capture, store, present, import and export needed patient records. The software should allow a better organization, easier retrieval in sequential way, chronological details of treatment performed and quick sharing of the same. If kept updated and shared amongst the various specialties they can present the whole longitudinal history of the patient to the service provider [12, 13].

EHR would include a range of data, that is- *personal data:* patient identification information, personal statistics like age and weight, vital signs, *comprehensive medical history*, diagnostic aids like laboratory test results, radiology images, clinical photographs, referral letters and consultants' reports; *drug records* including drug allergies, active medication, immunization status; *business records* like billing information, documentation of informed consent etc. This large amount of information is essential to be maintained, and digitizing the records provides an easy alternative of storing the above. The written records would always face issues like clarity of writing, fading away of ink, place to keep records [2, 3, 4, 8].

The way digital images have paved their way in daily practice even the digitized records would do the same; As by Dr. Lavine "a day would come when the paper records would become archaic" [14]. Peer pressure and patient demands, competition and aim of having a better approach to organizing records would lead more practitioners to accept EHR. Shifting rightly on time and being equipped to ride this wave would be a boon rather than being engulfed by same [15].

Dental informatics includes collaboration of the IT and medical-dental sector and has resulted in various practice management softwares paving their way out. Some are listed: ADSTRA dental software suite (by ADSTRA systems), Aerona Dental care (by Aerona software systems), Dentrix (By Henry Schein), Diamond dental software (by Diamond dental), Easy Dental (by Easy dental), e patient (by dental symphony), Galaxy dental systems (by galaxy systems), iSmile dental software (by iSmilesoftwares), Prime dental (by Prime dental software), Practice web dental (by practice web),Saral dental soft (by Saral computers),Total Dental (by total dental) and many more[16]. These softwares permit clinical charting, appointment management, imaging, document management, billing, payment history, treatment planning, reminders etc. As the files are saved as one unit it is easy updating them and no

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duplicates or multiples are created. It reduces the chances of data replication as there is only one modifiable file. Opening a document is easier and not time consuming when compared to relocating the paper records. The patient name or an id can be used to open and refer to the details hence the patient can just walk in without any records- rightly termed the paperless offices. The following benefits too could be considered-- patients may register online, the doctor would be able to check appointment schedule from anywhere, electronic prescribing may be done, the treatment and medical history can be retrieved easily and seen at one screen when patient walks in, including old treatment records too; managing payments and applying for insurance claims gets easier, business gets more integrated, digital images are preserved as attachments, not the least the back-up of all details is maintained. An updated clinical charting with all health details of a patient as one file, would also allow more evidence based recommendations. The software companies need to be in compliance with the regulatory policies and set standards [13-19].

Maintaining records is an ethical and legal responsibility. It would also aid in forensics and mass disasters [20-21].

Thes~~e~~ storage softwares are broadly of three types- *Cloud based EDR* like Dovetail office, Liptak DDS rescue, Patterson Eaglesoft Clinicianor *Client server based records* or even the *hybrid types* using features of both. EDR which are cloud based, store all information in space and is termed a cloud; these systems also claim disaster protection. The server based EDR store the records in the client office itself and in the hybrid type maintain the backup over a rented server [2,15]. What would be important is to provide training sessions to office staff and the operators during installations with intermittent free webinars for better understanding of the system. The EDR are apt for today's clientele where the patients would want to do some basic consultations or appointment scheduling even on a move, could be over a phone or a laptop or tablet or even a desktop.

Teledentistry is an exciting new area of dentistry putting together the electronic health records with telecommunications technology and digital imaging; also termed the marriage of computers and telecommunications [22- 25]. Here the Internet service providers play the key role in linking health providers in different places, could be rural or remote communities. This would aid in providing quality care for patient located in underserved areas by sharing EDR over internet and providing videoconferencing with the best of dentists; termed the teleconsultation. A specialist located many miles away would make a diagnosis and recommend treatment options if EDR is shared well. It is also considered to be a boon for education [24]. The initiation of the telehealth system began in 1990's and was given a new definition by Cook in 1997 for its role in videoconferencing and opening a new course of dental treatment. Its implementation would improve the primary health care services and could permit communication with a peer dentist. All details could be viewed on one screen making it easy to share and discuss. The Teledentistry has been divided as two types- 1) Two way interactive or real time consultation and 2) Stored and forward Teledentistry. It is bound to have revolutionary changes on practice management, professionalism, patient care and management, referrals and competition.

Telehomecare by various virtual services being provided to patients to self support and prepare themselves for certain situations at home especially patients with chronic problems needing palliative care [10].

Storing indefinitely and legal benefits: The guidelines for preservation time of paper records vary amongst different countries. For example: The Department of Health for National Health Service (NHS) organization in England states community dental records to be maintained for a period of 11 years for adults, and 11 years for children from the date they turn 18. RCS (Royal College of Surgeons) present with similar guidelines of 10 years for adults and 10 years for children once they turn 18. The guidelines adopted by the Provincial Dental Board of Nova Scotia, consider this time period as 2 years following treatment completion. In Texas dental records need to be stored for 5 years. They have a well laid set of guidelines mentioning different retention periods for different records and describing other necessary rules for disposition like shredding of paper records and deletion of EDR. In India, the MCI (Medical Council of India) regulations 2002, every physician shall maintain medical records pertaining to his/her indoor patients in a standard proforma for 3 years from commencement of treatment. IDA (Indian Dental Association) recommends maintenance of records up to a minimum of 5 years considering both consumer needs and the judiciary. The electronic records hence provide a practical approach to indefinite storage of records without really affecting storing space issues [26-28]. Multiple acts like the CPA (Consumer protection act) passed by the Indian Parliament in the year 1986 and some other legal avenues exist to safeguard and protect the interest of consumers. The preservation of record would come in interest of the doctors in such situations.

In patients with systemic diseases like diabetes miletus, immune compromised states where patient is under the treatment of multiple specialties, sharing the salient information becomes essential to avoid complications, drug interactions and to provide better care. This requires a change in the method of practice towards a more integrated form amongst various specialties and to move towards evidence based approach. Interdisciplinary treatment in dentistry

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involves mainly departments like Prosthodontics, Periodontics and Restorative dentistry and the sharing of patients' details is important for full mouth rehabilitations. [29, 30].

A study conducted at The Brigham Hospital and The Women Hospital at Massachusetts both using electronic records, helped conclude that by maintaining electronic records of patients the repetitions of many diagnostic tests was avoided, many individuals had undergone recent tests or investigations which could be used in further consultations. But to utilize the records in the manner as in the conducted study, a wise access to the records and exchange of salient information is essential amongst various specialties and the files need to be updated. [31-33]

Every individual's healthcare events can be recorded in longitudinally arranged manner. It hence demands collection of various records which can get generated during any clinical encounter and with strict implementation of every visit and revision.Problems like gap reporting, missing links in shared responsibility, problem with billing codes have been the practical hunches.

Other benefits of EDR particularly pertaining to dentistry would be the ease in maintaining records of full mouth rehabilitation cases and patients with mutilated dentitions needing complex and multidisciplinary treatment plans. Even interactions with laboratory would profit if certain needed images (dentition shape/size/ interrelationships/colouretc) could be shared for better end results [34]. The communication between dentist and the technician plays a very significant role in dental procedures and digital communication and make interactions quicker and accurate.

III. Standardisation

Standardization of these systems is very important to achieve integration of the records and safety. These should also allow privacy and active participation of patient for complete benefits of the system. If the software promotes alerts or reminders it would help in better involvement of patients. Internationally the HITECH Act and HIPAA govern the software policies. The ADA aims to standardize the EDR's which would be regulated by set rules as under specification no. 1001. Standards to be followed include areas like identification and demographics, patient identifiers, architecture requirements (ISO18308:2011 Health informatics), functional requirement (ISO HL710781: 2015 Health Informatics), reference model and composition (ISO 13940 Health informatics – system of concepts to support continuity of care), terminology (SNOMED CT), coding system (Logical observation identifiers names and codes – LOINC, WHO-FIC), scanned or captured records, imaging (DICOM- digital imaging and communications in medicine), data exchange, discharge summary, e prescription, data privacy (ISO /TS 14441:2013 health informatics.), integrity and encryption.

To maintain the needed standardization a continuous evolution and timely maintenance is a must. IHTSDO releases SNOMED CT twice annually and NHS mentions use of same for dental, nursing and drug related information. The standards have been set for the diseases/health conditions to be mentioned in softwares as abiding by WHO-FIC (The WHO family of international classification). Similarly e-prescription has to follow the pharmacy practice regulations 2015, (PCI).

Regulatory policies like Health Insurance Portability and Accountability Act (HIPAA) -1996, SNODENT®, dental subset of SNOMED CT etc. have been laid mainly to standardize and integrate various softwares. The later has been initiated by *The International Health Terminology Standards Development Organization (IHTSDO) and its Dentistry Specialty Interest Group (SIG)* to manage health information exchange safety. To a greater credit, the Open EHR is a non-profit organization which aims to develop interoperability and computability in e-health and focuses on EHRs. It provides reference model specifications and consists of a library of data points or groups; called the Archetypes – ISO 13606-2. [11, 35-41]

The Security Concerns of using these softwares are significant. The records are a possession of the patient and the operator or doctor concerned. The privacy and safe record keeping is an utmost requirement. Certain inclusions in the EDR would help making the records more secure: like use of login details like username and password, sticky policies for transferring and editing of data to maintain security, the system should make it possible to see when and why was a patient file accessed, provision for changing passwords and use of firewalls so as to maintain the details safe and free from hacking and other malpractice. Authorization too has been suggested for maintaining confidentiality.

Certifications of these program softwares by ONC/ONCHIT (Current Office of National Coordinator for Health Information Technology) have been fully operational since 2012 in US, before which a Temporary Certification Program (TCP) was functional since 2010. A similar system exists in Europe by name Eurorec, to help maintain quality of record keeping through digital means [36].

All the certified products have been included in CHPL or Certified Health Product List. This includes programs of two types 1) The complete EHR and 2) Modular EHR. Complete EHR as the name suggests meets all requirements of security and privacy concerns along with the utility criteria. The latter does not meet all the set requirements for certain edition of ONC certification, and also demands for eligible providers to implement additional software to meet all the

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certification criteria. Indian government has presented with an act named DISHA that is digital information security in healthcare; which hereby suggests the following to avoid breach and its consequences- 'Anonymization', that is deleting personal information from digital health data, or 'Deidentification' in a manner that it can be connected again (planned by NeHA). The privacy and confidentiality of EDR would be the dentists' responsibility. Discarding files in electronic media is safer and can be deleted from all records so as not to allow access to anyone. When in store, the access to all people should be restricted and right training of office staff and trust is a must. Threats to health care information and its privacy could be by certain human threats, such as employees or hackers; or from technology failures, such as a system crashing; and also from natural and environmental threats such as earthquakes, hurricanes and fires. These threats can either be internal, external, intentional and unintentional. Another big challenge is the errors involved due to wrong human and computer interactions [41-46]. The accuracy of EDR may get affected while inputs of the data are made by the staff involved. Standardized software with a database to cross check medical terms, drug doses etc may reduce such errors.

IV. Barriers and Hindrances in Acceptance of EDR

EDR helps to organize the practice better and provide other multiple advantages, but no science comes easy, be it the financial aspect, training requirements or the employment of a new system on a wider basis, all need a very good management and support. Dentistry lags behind medical fraternity in terms of the quality of record keeping. Medical doctors must comply with stringent record keeping regulations, even on paper as the stakes involved are more. Dental practitioners do not yet face this level of pressure to comply, although changes in this direction are just a matter of time. Mandating this compliance for the dental community, the quality of care could improve. In one perspective 'Teledentistry' could be a benefit in developing countries to improve patient care, the same time finances to create such a huge network matter more. Surveys suggest the poor maintenance of paper records by dentists in many Indian states and hence needless to mention digitizing would come much later. A very low percentile of about 38% of surveyed dentists was found to maintain records, whereas 62% of them were maintaining no records at all, in a study regarding awareness, in one of the states of India. Astekar M. et al found in their cross-sectional survey based on telephonic conversation that few dentists (surveyed) were aware of the legal mandate for dental records and were ignorant about the laws governing their profession [21]. A similar situation was found in another state by Preethi *et al* where 21% of the target or surveyed dentists did not maintain any form of dental record and only 12% maintained complete dental records. This trend could be reflected in other parts of the country and is a very alarming situation as most dentists are unaware of the ethical and legal implications of inadequate or improperly maintained dental records [47]. But the Indian law [Article 51 A(h) of the Constitution of India] mentions of the moral obligation on the doctor and the legal duty, to maintain and preserve medical, medicolegal, and legal documents in the best interests of social and professional justice. Also it is necessary to maintain accounts to avoid action from Income Tax authorities under Section 44 AA of the Income Tax Act, 1961 [34]. India faces greater problem due to a larger population, diverse culture and spread over a larger region of varied geographical landscapes. The interoperability and all models based on similar principles is very important. International Trade Administration's Health IT top markets report estimated global health care expenditure as US $ 7trillion, in 2015, and likely to exceed US $ 9trillionby 2020.

Only an involvement of various government sectors, The Ministry of Electronics and IT, Ministry of Health and Family welfare and NITI Aayog or erstwhile planning commission of India can together make changes happen [44].

The integration of EMR and EDR is another very big challenge. Which is what is the actual benefit of the system. Medical fraternity would benefit if gets an access to dental records, as many systemic ailments are first noted in the mouth like some carcinomas, Sjogrens syndrome, diabetes milletus, eating disorders, syphilis and gonorrhea. A survey in US Medical Records Institute, on the EHR trends found a 70% positive response for the need of sharing patient information with others and mentioned it to be quite helpful for practice and patient benefits [2, 15]. A single consolidated record would also be a great aid in research. Such longitudinal records would really help in better and more evidence based decisions.

The benefits of EDR are many, but the financial aspect would remain a major consideration and the endless comparison of these benefits against costs would exist. Clinicians and researchers understand the significance of EDR to proceed further or improve the practice, and to keep pace with the digitized times of today. Studies have shown it to be cost effective in a long run and in hospitals or multispecialty centers where employing and training staff exclusively for maintaining these records becomes worthwhile. Smaller or individual units would find the latter difficult. After the investment is done towards the digital management of records, it is only with time the benefits would be reaped. The more number of staff in bigger setups could be trained to manage these duties better. The number of dentists

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worldwide who are trying to adapt to latest trends is increasing.

A study in 2006 found 90% of surveyed dentists using practice management software and turning their offices into paperless; of which 47% were new and 42% the established dentists [13]. A study suggested the amount spent annually over stationary, staff time, operator and x ray films would be more than costs involved in electronic records [37].They are expensive in terms of training institutes but considering better future prospects, investments can be justified. The costs on patients would get higher but it allows a better retrievability of records and whole lot of other benefits.

It is also to be noticed that application of EPR requires help of health information management professionals and they should integrate the whole medical fraternity to reap true benefits. Present state may not be really helpful unless intraoperability and integration or records achieved. The benefits could be achieved in one context and not in the other depending on the clinical routine and control over programming errors, errors in human computer interactions, and data entry errors in copying from notes, of vital signs or drugs or cut paste errors. The EDR seem to be more beneficial for larger set ups in terms of cost effectiveness, also the interoperability is really needed for a patient and the changing staff. Researchers mentioned that it makes sense but may not suit all. Hence being applicable to a greater sector needs lot of hurdles to be crossed [50].

If not well handled it may also lead to adverse consequences like wrong alerts, not sufficiently updated records resulting in wrong clinical decisions. Some researchers have found present scenarios not upto the mark and needing improvements, and damage caused by improper use of EPR has been also stated as e- iatrogenesis [51,52].

Authors' point of view

The greater challenges remain in demographically developing sectors. To achieve the goals set for EPR, it would need to first begin at educational institutions where the training dentists realize the importance of dental records, and hence apply later in practice. The exposure to technological changes and software managements would remove the associated inhibitions. The aid by governments towards the teaching institutes becomes must hence to implement this.

V. Conclusions

The accurate health/dental history provides important and valuable information for the dentist, prior to beginning treatment and hence the importance of taking and keeping records and updating them. Records needed for legal implications, insurance, consumerism, good quality care and electronic records can help achieve all. It is an independent field not just involving the medical and dental fraternity but the health information management and informatics sector. More and more dentists are perhaps turning towards paperless offices internationally yet much is to be achieved when it comes to standardization and integration in true sense. It demands a periodic review and update for the document to be living document.

Abbreviations

ADA- American Dental Association
ARRA- American recovery and reconstruction act
CHPL – Certified health IT product list
DISHA-Digital information security in healthcare
EDR- Electronic Dental Records
EMR- Electronic Medical Records
EPR- Electronic Patient Records
IDA- Indian Dental Association
LOINC- Logical observation identifiers names and codes
MCI – Medical Council of India
NeHA-National electronic health authority of India
ONC/ONCHIT- Current Office of National Coordinator for Health Information Technology
HIPAA- Health Insurance Portability and Accountability Act of 1996
HITECH- Health information technology for economic and clinical health act (2009)
HIT- Health Information Technology
TCP – Temporary certification program
PCI- Pharmacy council of India
WHO-FIC- The WHO family of international classification

References Références Referencias

1. Available on: http://en.wikipedia.org/wiki/Digitizing. Last accessed on 16/5/2015.
2. Kalra D, Ingram D. Electronic health records. Information Technology Solutions for Healthcare, Health Informatics 2006, pp 135-181. doi: 10.1007/1-84628-141-5_7.
3. Available on: http://www.ada.org/en/member-center/member-benefits/practice-resources/dental-informatics/electronic-health-records. Last accessed on 14/05/15.
4. Blumenthal D, Tavenner R N. The meaningful use regulation for electronic health records. N Engl J Med.2010; 363: 501-504.
5. Langbeer J R II, Welgi M F, Taylor D, Valenza J A. Economic outcomes of a dental electronic patient record. J dent edu. 2008; 72(10): 1189-1200.
6. Weed L L. Medical records that guide and teach. The New England journal of medicine. 1968. Mar 21(278(12) 652-7.
7. Lieberthal B. The electronic medical record and future of dentistry. Practice management notes; supplement to AAOMS today newsletter. 2008: March-April. Available on: https://www.aaoms.org/

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docs/pm_notes/2008_04.pdf. last accessed on 16/5/15
8. ADA centre for informatics and standards. Available at: http://www.ada.org/en/member-center/member-benefits/practice-resources/dental-informatics. Last accessed on 16/5/15.
9. Schleyer T K, Corby P, Gregg AL. A Preliminary Analysis of the Dental Informatics Literature. ADR 2003; 17(1):20-24.
10. Annual report 2016-2017; Canada health infoway. Accessed at https:// www.infoway-inforoute.ca.
11. Electronic Health Record (EHR) Standards for India -2016. Available at: https://mohfw.gov.in/basicpage/electronic-health-record-ehr-standards-india-2016
12. Des Roches C M, Campbell E G, Rao S R et al. Electronic Health records in ambulatory care- a national survey of physicians. N Engl J Med 2008; 359: 50-60. Accessed at: www.medscape.com/viewarticle/580805. doi; 10.1056/NEJMsa0802005
13. Burns L. Making the switch to electronic dental records. Nov, 2010. Available at: http://www.dentistryiq.com/articles/2012/11/making-the-switch-to-electronic-dental-records.html.
14. Rudman W, Hart-Hester S, Warren J, Nadine C, Mary M. "Integrating Medical and Dental Records: A New Frontier in Health Information Management." Journal of AHIMA 81, no.10 (October 2010): 36-39.
15. Available at: www.Capterrra.com/dental-software/ accessed on 17/5/15.
16. Waegemann C P. Health Information Technology's Problems. Health Affairs, 32, no.3 (2013):629. doi: 10.1377/hlthaff.2013.0091.
17. Fricton, J, Rindal D B, Rush W, et al., The Effect of Electronic Health Records on the Use of Clinical Care Guidelines for Patients With Medically Complex Conditions, *J Am Dent Assoc.* 2011; 142: 1133-1142..
18. Lawney M. For the Record. Understanding Patient Recordkeeping. N Y State Dent J.1998; 64: 34.
19. Collins D. What a dentist should know about oral health record. Northwest Dent.1996; 75: 35–9.
20. Devadiga A. What's the deal with dental records for practicing dentists? Importance in general and forensic dentistry. J Forensic Dent Sci. 2014 Jan-Apr; 6(1): 9–15. doi: 10.4103/0975-1475.127764.
21. Astekar M, Saawarn S, Ramesh G, and Saawarn. Maintaining dental records: Are we ready for forensic needs? Forensic Dent Sci. 2011 Jul-Dec; 3(2): 52–57. doi: 10.4103/0975-1475.92143.
22. Chen J W, Hobdell M H, Dunn K, Johnson K A, Zhang J. Teledentistry and its use in dental education. J Am Dent Assoc. 2003 Mar; 134(3): 342-6.
23. Bauer J C, Brown W T. The digital transformation of oral health care- Teledentistry and electronic commerce. J Am Dent Assoc. 2001: 132(2) 204-209.
24. Chandra G, Rao J, Singh K, Gupta K. Teledentistry in India: Time to deliver. Journal of education and ethics in dentistry. 2010; 2(2): 61-64.
25. Fricton J, Chen H. Using teledentistry to improve access to dental care for the underserved. Dent Clin North Am. 2009 Jul; 53(3): 537-48.
26. Szekely D G, Milam S, Khademe J A. Legal issues of the electronic dental record: security and confidentiality. Journal of dental education. 1996; 60(1): 19-23.
27. www.dshs.state.tx.us/records/medicalrec.shtm, accessed on19/5/15.
28. Dental record keeping by Royal College of surgeons.2008: May. Available at: www.rcdso.org. Last Accessed on 18/5/15.
29. Sawhney S, Kundabala M, Shetty N, Thomas M. Patient record and communication in interdisciplinary dentistry. J Interdiscip Dentistry. 2014; 4: 62-5.
30. Bhambhani R, Sen S K, Bhattacharyya J. Digitization and its futuristic approach in Prosthodontics. J Indian Prosthodont Soc.2013 Sep; 13(3): 165–174 doi: 10.1007/s13191-012-0181-2.
31. Use of health information technology to reduce diagnostic errors. El- Karehr, Hassan O, Schiff G D. BMJ Qul Saf; 2013; 22: ii40-ii51. Doi: 10.1136/bmjqs-2-013-001884.
32. Angiel D, Kohane I S, Weber G M. Biases in electronic health record data due to processes within the healthcare system: retrospective observational study BMJ 2018;361 doi: https://doi.org/10.1136/bmj.k1479.
33. Wright A, Mc coy A B. Sitting D F. Problem list completeness in electronic health records. A multi site study and assessment of success factors.
34. Petrides et al. The benefits and challenges of an interfaced electronic health record and laboratory information system. Arch Pathollab med.2017 (141): 410-417.
35. Hoerbst A, Ammenwerth E. Electronic health records. A systematic review on quality requirements. Methods inf med. 2010:499. doi:10.3414/ME10-01-0038.
36. Skifkas P M. Guarding the files: Your role in maintaining the confidentiality of patient records. J Am Dent Assoc. 1996; 127: 1248–52.
37. Hobson K. Web based electronic Health record safety. Wall street journal health blog, Nov 15, 2010. Available at: http://blogs.wsj.com/health/2010/11/15/webbased-electronic-health-record-safety-registry
38. www.xldent.com. Accessed last on 3/6/15.
39. Collins D. What a dentist should know about oral health record. Nortwest Dent. 1996; 75: 35–9.
40. Available at: http://www.openehr.org/ what_is_openehr. Accessed last: 17/5/15.

© 2019 Global Journals

41. Bowman S. Perspectives in Health Information Management. 2005. "Coordination of SNOMED-CT and ICD-10: Getting the Most out of Electronic Health Record Systems."
42. Ajami S, Chadegani R A. Barriers to implement Electronic Health Records (EHRs). Mater Sociomed. 2013; 25(3): 213–215. doi: 10.5455/msm.2013.25. 213-215.
43. NHS Planning commission of India, Health Division. Report of the Steering Committee on Health for the 12th five year plan. New Delhi Health Division, Planning Commission of India; 2012.
44. Srivastava S K. Adoption of Electronic health records: A roadmap for India. Health informatics. Healthc Inform Res.2016 Oct; 22(4): 261-69. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5116537/#_ffn_sectitle. Published online 2016 Oct 31. Doi: 10.4258/hir.2016.22.4.261.
45. Bergkvist S. Health system in india: bridging the gap between current performance and potential. New Delhi National Institute for transforming India. India Aayog; 2015.
46. Health information and Management Systemns society. Electronic health records: a global perspective. 2nd ed. Chicago (IL): Health informatipn and management systmens society.
47. Preethi S, Einstein A, Sivapathasundharam B. Awareness of forensic odontology among dental practitioners in Chennai: A knowledge, attitude, practice study. J Forensic Dent Sci [serial online] 2011 3:63–6. Available from: http://www.jfds.org/text.asp?2011/3/2/63/92145.
48. Dykstra B A. The economics of the digital dental record: Can you afford not to make the switch? Available on http://www.dentaleconomics.com/articles/print/volume-99/issue-9/features/the-economics-of-the-digital-dental-record-can-you-afford-not-to-make-the-switch.html. last accessed 27/4/15
49. Waegemann C P. The vision of electronic health records. J Ed Pract Manage.2002 Sep-Oct; 18(2): 63-5.
50. Osborn J B, Stoltenberg J L, Newell K J, Osborn S C. Adequacy of dental records in clinical practice: A survey of dentists. J Dent Hyg. 2000; 74: 297–306.
51. Sullivan J M. Recent developments and future trends in electronic medical and personal records in US. The health law.
52. Singh H. Defining health infection technology related errors. Archives of internal medicine.2011; 171: 281.
53. Charangowda B K. Dental records: An overview. J Forensic Dent Sci. 2010 Jan-Jun; 2(1): 5–10. doi: 10.4103/0974-2948.71050.
54. Samadi F M, Bastian T S, Singh A, Jaiswal R. Dental records – A vital tool of forensic odontology. Medico-Legal Update. 2009; 9: 14–5.
55. Caceres S B. Electronic Health Records: beyond the digitization of medical files. Clinics (Sao Paulo). 2013; 68(8): 1077-1078. doi: 10.6061/clinics/2013(08)02.

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Studies on Selected Biochemical and Hormonal Profile Status in Plasma of Some Roadside Welders in Ajegunle, Nigeria

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Keywords: *roadside welders, biochemical parameters, hormonal profile status, ajegunle, nigeria.*

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Studies on Selected Biochemical and Hormonal Profile Status in Plasma of Some Roadside Welders in Ajegunle, Nigeria

Egoro, Emmanuel Tonbra. [α], Oni, Emmanuel Sunday [σ] & Chukwuma, Samuel Anakwe [ρ]

Abstract- Welding is a blending process that involves the joining together of metals or thermoplastics. This study was aimed at assessing the status of selected biochemical parameters and hormonal profile in plasma of some roadside welders within the age range of 35-45 years who had welded with ≥20 welding rods/day for a duration of ≤10 years (experimental group one) and ≥11years (experimental group two) respectively. Five ml blood specimen was withdrawn from each of the ninety apparently healthy recruited volunteers who were categorized as control group (n=30), experimental group one (n=30) and experimental group two (n=30). The plasma obtained was used for the quantitative measurement of alanine aminotransferase, aspartate aminotransferase, alkaline phosphatase, C- reactive protein, urea, creatinine, luteinizing hormone, follicle stimulating hormone, prolactin and testosterone. The results showed no significant alterations in the mean values (p≥0.05) of all the measured biochemical and hormonal profile status in experimental group one volunteers as against that of the control group. However, in experimental group two volunteers only alanine aminotransferase, aspartate aminotransferase, alkaline phosphatase, C-reactive protein, urea, creatinine and testosterone were significantly altered (p ≤0.05) against that of the control group while other parameters were not altered. In conclusion, welding with ≥20 welding rods/day for ≥11 years duration may pose danger to roadside welders in the studied community. Gross neglect of safety precautions may be contributory to this danger. It is therefore recommended that roadside welders should comply with safety precautions and go for regular medical check- up.

Keywords: roadside welders, biochemical parameters, hormonal profile status, ajegunle, nigeria.

I. Introduction

Welding is an old profession which applies the joining of metals or thermoplastics through construction process, thus resulting into blending. As reported by an ancient Greek historian Herodotus, this profession which was invented by Glaucus of Chios has been in practice for so many millennia dated back with the use of bronze and iron as earliest examples in Europe and Middle East (1), followed by the emergence of "short pulse" electrical arc welding by Sir Humphry Davy in 1800, (2, 3, 4), which was later followed by the emergence of continuous electric arc welding in 1802 by a Russian Scientist, Vasily Petrov (4,5).

Apart from being indecent, welding is a very dangerous occupation that requires strict compliance to the necessary precautions so as to prevent its harmful effects. Exposure to gases such as ozone, carbon dioxide and fumes that contain heavy metals may pose danger to the health status of welders that are inexperienced. For example exposure to manganese fumes generated from welding even at levels as low as < 0.2mg/m^3 may cause health problems such as neurological and/or damage to liver, kidneys, central nervous system and the lungs in particular where nano particles are easily trapped in the alveolar macrophages thus inducing pulmonary fibrosis (6,7).

This study which is aimed at assessing the alterations of selected plasma biochemical parameters and hormonal profile status in some roadside welders in Ajegunle, Nigeria who had welded with ≥20 welding rods/day for a duration of ≤10 years and ≥11 respectively was embarked upon taking into consideration the danger posed by exposure to gases and fumes generated from welding rods as well as the gross non compliance to safety precautions by most of these roadside welders.

II. Materials and Methods

Ninety apparently healthy male subjects categorized into three (3) groups as shown were randomly recruited for this research work: Control group: This group consisted of thirty (30) apparently healthy male volunteers within the age range of 35-45 years who by virtue of their profession are white collar workers. Experimental group one: This group consisted of thirty (30) apparently healthy male volunteers who are roadside welders and by virtue of their profession had welded with ≥20 welding rods/day for a duration of ≤10 years and are within the age range of 35-45 years. Experimental group two: This group consisted of thirty (30) apparently healthy male volunteers who are

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roadside welders and by virtue of their profession had welded with ≥20 welding rods/day for a duration of ≥11 years and are within the age range of 35-45 years. As at the time of carrying out this research work all the recruited volunteers in both the control and experimental groups were free from any ailment(s), Besides, they were not addicted to cigarette smoking, snuffing, drugs and coffee abuse thus ruling out the likely effects of these lifestyle variables on the obtained results. All the collected data from the recruited volunteers were through well structured questionnaire.

The procedure used for this research was strictly in compliance with the principles of Helsinki declaration of 1975 as revised in 2008. Approval was obtained from all the recruited volunteers who were informed and made to know the reason for which their blood specimens were being collected. Furthermore, permission was obtained from employers of the recruited volunteers in the experimental groups: Oluwafemi Welding and Construction Industry, Oluwasegun Welding and Construction Industry and Adegoke Welding and Construction Industry all in Ajegunle, Lagos State, Nigeria before their blood specimens were collected.

After this process, five ml blood specimen was withdrawn from each of the recruited volunteers (control and experimental groups) via a standard venipuncture technique and dispensed into lithium heparinized anticoagulated bottles respectively. The specimen in each bottle was mixed carefully so as to ensure homogenicity and prevention of blood clot, and thereafter spun for 10minutes at 1,500 revolution/minute using Gulfex Medical and Scientific macro centrifuge model 800D England.

The obtained plasma was subsequently used for the quantitative measurement of biochemical parameters and hormonal profile status. The absorbance of the following biochemical parameters were quantitatively measured with S23A13192 model spectrophotometer: alanine aminotransferase (ALT) as described in the manual of 11th February, 2009 revised edition of Randox Laboratories Limited, 55, Diamond Road, Crumlin, County, Antrim, BT294QY, United Kingdom in accordance with the colorimetric method of (8,9), aspartate aminotransferase (AST) as described in the manual of 5th January, 2007 revised edition of Randox Laboratories Limited, 55, Diamond Road, Crumlin, County, Antrim, BT294QY, United Kingdom in accordance with the colorimetric method of (10,11), alkaline phosphatase (ALP) as described in the manual of September, 2001, A506 edition of Teco Diagnostics, 1268N, Lakeview Avenue, Anaheim, CA92807, 1-800-222-9880 in accordance with the colorimetric endpoint method of (12), C-reactive protein (Crp) as described in the manual of Spin-react Diagnostic, Spain in accordance with the latex turbidimetry method of (13,14), urea, as described in the manual of 7th January, 2011 revised edition of Randox Laboratories Limited, 55, Diamond Road, Crumlin, County, Antrim, BT294QY, United Kingdom in accordance with the urease Berthelot method of (15-18) and creatinine, as previously described by Jaffe in 1886 and revised on the 15th September, 2010 by Randox Laboratories Limited, 55, Diamond Road, Crumlin, County, Antrim, BT294QY, United Kingdom in accordance with the Jaffe reaction method of (19, 20). The absorbance of the following hormonal profile status were quantitatively measured with plate reader MR DYNEX Technologies Inc 14340 Sullyfield Circle, Chantilly, VA , 20151-1621 USA with serial number IMRA-2676 using the specified methods: luteinizing hormone, as described in the manual of May, 2008 revised edition of Diagnostic Automation Inc Microwell enzyme immunoassay test kit catalog No 4225 in accordance with the colorimetric method of (21), follicle stimulating hormone, as described in the manual of 4th February, 2003, revised edition of enzyme immunoassay test kit catalog No BC-1029, Biocheck Inc, 323, Vintage Park, Dr Foster City, USA, CA 94404 in accordance with the colorimetric method of (22), prolactin, as described in the manual of 27th June, 2003 revised edition of enzyme immunoassay test kit catalog No: PROL-96 in accordance with the colorimetric method of (23), and testosterone, as described in the manual of PI EL-198 revision 6: 02/2009 of Immunospec Corporation, 7018 Owensmouth Ave. Suite 103, Canoga Park, CA 91303. REF. EI-198 in accordance with the colorimetric method of (24).

Statistical analysis

The data obtained from the recruited volunteers (control and experimental groups) via well structured questionnaire were analyzed using descriptive statistic of frequency and percentage while the results obtained from the quantitative measurement of their plasma biochemical parameters and hormonal profile status were expressed as mean and standard deviation with the differences between the control and experimental groups assessed using the student's" t" tests, which were considered statistically significant at $p \leq 0.05$

III. Results and Discussion

Welding fumes are harmful metal fumes that are generated in the course of welding. The harmful effects of these fumes coupled with gross non compliance with safety measures by majority of roadside welders in the studied community have become a burden that demands swift attention. In furtherance to increase knowledge on these harmful effects, data on compliance with safety measures while working were obtained from the recruited volunteers in experimental groups one and two via well structured questionnaire as shown in Table 1.

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The data revealed that 80% of these volunteers are non compliant with the use of leather hand gloves and particles masks safety measures respectively while 90% and 100% are non compliant with the use of long sleeve jackets and helmets with dark ultra violet filtering face plate safety measures respectively. However, the results went further to show that 100% of the volunteers are compliant with the use of goggles as a safety measure. These findings as established in this study may easily permit the dangers posed by fumes and gases generated from these welding rods on the roadside welders in the studied community taking into consideration the high percentage rate of non compliance with these welding safety measures which may however, be attributed to the non provision of these safety gadgets by the management of the roadside welding and construction industries or gross neglect of usage by the roadside welders.

In this study the mean values of biochemical parameters in plasma of the control group were also compared with that of the experimental group one as shown in Table 2. The results revealed no significant alterations ($p \geq 0.05$) in the mean values of all the measured plasma biochemical parameters as against that of the control group. This finding which is established in this study is suggestive that welding with ≥20welding rods/day for a duration of ≤10 years may not pose danger to the health status of roadside welders in the studied community.

In this study the mean values of hormonal profile status in plasma of the control group were also compared with that of the experimental group one as shown in Table 3. The results revealed no significant alterations ($p \geq 0.05$) in the mean values of all the measured plasma hormonal profile status as against that of the control group. This finding which is established in this study may be suggestive that welding with ≥20 welding rods/day for a duration of ≤10 years does not alter hormonal profile status thus may not pose danger to the health status of roadside welders in the studied community.

In this study the mean values of biochemical parameters in plasma of the control group were also compared with that of the experimental group two as shown in Table 4. The results revealed significant elevations ($p \leq 0.05$) in the mean values of plasma alanine aminotransferase (ALT), plasma aspartate aminotransferase (AST) and plasma alkaline phosphatase (ALP) as against that of the control group. This finding as established in this study is presumed to be linked with liver injury caused by the inhalation of heavy metal such as manganese which is generated from the fumes of ≥20 welding rods/day used for welding for a duration of ≥11 years by these roadside welders thus resulting in the release of these enzymes from the liver into the plasma.

The mean value of C-reactive protein in plasma of the recruited volunteers in experimental group two as shown in Table 4 revealed significant elevation ($p \leq 0.05$) as against that of the control group. This finding which is established in the study and in conformity with the previous work of (25) is suggestive of inflammatory disorder which may be due to the exposure and inhalation of gases and fumes generated from the use of ≥20 welding rods/day for a duration of ≥11 years by the roadside welders with the resultant release of interleukin 6 as well as cytokines that are capable of triggering the synthesis of C-reactive protein via the liver.

The mean values of urea and creatinine in plasma of the recruited volunteers in experimental group two as shown in Table 4 revealed significant elevations ($p \leq 0.05$) as against that of the control group. This finding which is established in the present study may be suggestive of renal impairment caused by the inhalation of heavy metals such as manganese, cadmium etc which are produced from the fumes of ≥20 welding rods/day used for welding for a duration of ≥11 years by the roadside welders.

In this study the mean values of hormonal profile status in plasma of the control group were also compared with that of the experimental group two as shown in Table 5. The mean value of testosterone in plasma of the recruited volunteers revealed significant decrease ($p \leq 0.05$) as against that of the control group. This finding as established in the present study may be linked to the exposure and inhalation of heavy metals and gases generated from fumes of the ≥20 welding rods/day used for welding for a duration of ≥11 years by these roadside welders which could be inhibitory to spermatogenesis thus putting them at infertility risk. However, none of the recruited volunteers in this experimental group had significant mean values alterations ($p \geq 0.05$) of plasma luteinizing hormone, plasma follicle stimulating hormone and plasma prolactin as against that of the control group. The reasons for this are not clearly understood, thus further research is suggested.

Table 6 shows the percentage of volunteers in both experimental groups one and two with abnormal values as compared to the reference ranges for the measured parameters. As revealed in the Table, 7% of the volunteers in experimental group one had significant elevations of plasma alanine aminotransferase, aspartate aminotransferase, alkaline phosphatase, urea and creatinine respectively as against 50% of the volunteers in experimental group two respectively. This finding which is established in the present study is further suggestive that 50% of roadside welders in the studied community who had used ≥20 welding rods/day for welding over a duration of ≥11 years are prone to risks of hepato-renal disorder due to the longtime bioaccumulation of cadmium, manganese etc

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which are toxic heavy metals generated from the fumes of welding rods as against 7% of those who had used ≥20 welding rods/day for welding over a duration of ≤10 year.

Also revealed in this study, 13% of volunteers in experimental group one had significant elevation of plasma C-reactive protein as against 67% in the experimental group two. This finding as established in the present study may as well be suggestive of inflammatory disorder which may be due to the bioaccumulation of toxic heavy metals over the duration of ≥11 years use of ≥20 welding rods/day which has thus yielded the release of interleukin 6 and cytokines that are capable of triggering the synthesis of C-reactive protein via the liver.

In this study, 13% decrease in the plasma value of testosterone in experimental group one volunteers was revealed as against 60% decrease in the plasma value of testosterone in experimental group two volunteers. It is further shown from this study that exposure to fumes and gases generated from the use of ≥20 welding rods/day for a duration of ≥11 years may put roadside welders in the studied community at the risk of oligospermia.

IV. Conclusion

In conclusion, this present study has established that chronic inhalation of gases and fumes generated during the course of using ≥20 welding rods/day for a duration of ≤10 years coupled with gross non compliance with safety measures appear not to have any significant toxic effects on the roadside welders in the studied community. However, chronic inhalation of gases and fumes generated during the course of using ≥20 welding rods/d ay for a duration of ≥11 years coupled with gross non compliance with safety measures may put 50% of roadside welders in the studied community at risks of liver and renal disorders respectively while 67% and 60% may be put at the risk of inflammatory and fertility disorders respectively.

V. Recommendations

(i) Management of roadside welding and construction industries should include health education in their apprenticeship programme so as to enlighten trainee welders and qualified roadside welders on the importance of adhering strictly to safety measures while working.

(ii) Safety gadgets should not only be provided by management of roadside welding and construction industries, but usage by welders and trainee welders while at work should be enforced.

(iii) Management of roadside welding and construction industries should register with reputable medical facilities so as to enable her members of staff go for routine medical check-up.

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References Références Referencias

1. Herodotus (2008). The histories. Trans. R. Waterfield. Oxford: Oxford University Press. Book One, 25.
2. James, F (2000). Lincoln arc welding foundation. Lincoln electric. The Procedure Handbook of Arc Welding 14th Edition,. P 1.1-1.
3. Hertha A. (1902). The electric arc. D. Van Nostrand CO, New York, pp 20, 24 and 94.
4. Anders A. (2003). "Tracking down the origin of arc plasma science-11. Early continuous discharges" IEEE Transactions on Plasma Science. 31(5): 1060-9. doi: 10.1109/TPS.2003.815477.
5. Lazarev P. P. (1999). "Historical essay on the 200 years of the development of natural sciences in Russia (PDF). Physics-Uspekhi, 42 (1247): 1351-1361, doi: 10.1070/PU1999V042n12ABEH000750, archived from the original (Russian) on 2009-12-04.
6. Welding and Manganese: Potential neurologic effects. The inhalation of nano particles. National Institute for Occupational Safety and Health. March 30, 2009.
7. James D. B., John A. B. (2008). The significance of nano particles in particle-induced pulmonary fibrosis. McGill Journal of Medicine 11(1): 43-50. PMC 2322933. PMID 18523535.
8. Reitman S., Frankel S. (1957). Quantitative in vitro determination of alanine aminotransferase in serum. Amer. J. Clin. Path,; 28: 56.
9. Schmidt E., Schmidt F. W. (1963). Quantitative in vitro determination of alanine aminotransferase in serum. Enzym. Biol. Clin, 3: 1.
10. Reitman S., Frankel S. (1957) Quantitative in vitro determination of aspartate aminotransferase in serum. Amer. J. Clin. Path., 28: 56.
11. Schmidt E., Schmidt F. W. (1963). Quantitative in vitro determination of aspartate aminotransferase in serum. Enzym. Biol. Clin., 3: 1.

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12. Kochmar J. F., Moss D. W. (1976). Direct colorimetric determination of alkaline phosphatase in human serum. In: Fundamentals of clinical chemistry, NW Tietz (Edition). W. B Saunders and Company, Philadelphia PA, p604.
13. Kari P. (2007). Quantitative measurement of C- reactive protein. J. Clin. Lab. Invest, 46: 606-607.
14. Yoshitsugy H. (2007). Quantitative measurement of C-reactive protein. J. Clin. Lab. Status, 1: 15-27.
15. Mackay E. M. and Mackey L. L. (1927). Quantitative in vitro determination of urea in serum, plasma and urine. J. Clin Invest. 4: 295.
16. Fawcett J. K. and Scott J. E. (1960). Quantitative in vitro determination of urea in serum, plasma and urine. J. Clin. Path. 13: 156.
17. Chaney A. L. and Marbach A. L. (1962). Quantitative in vitro determination of urea in serum, plasma and urine. Clin Chem. 8: 130.
18. Weatherburn M. W. (1967). Quantitative in vitro determination of urea in serum, plasma and urine. Annal Chem. 39: 971.
19. Schirmeister J. H, Willmann and Kiefer H. (1964). Quantitative in vitro determination of creatinine in serum, plasma and urine. Dtsch Med. Wschr 89: 1018.
20. Henry R. J. (1974). Clinical Chemistry, Principles and Technics. 2nd Edition, Harper and Row, p 525.
21. Knobil E. (1980). The neuroendocrine control of the menstrual cycle, Rec. Prog. Horm. Res. 36: 52-88.
22. Uotila M, Ruoslahti E and Eugvall E. (1981). Enzyme immunoassay for the quantitative determination of follicle stimulating hormone concentration in human serum. J. Immunol Methods, 42: 11-15.
23. Cowden E. A., Ratcliffe W. A., Beastall G. H. and Ratcliffe J. G. (1979). Enzyme immunoassay for the quantitative determination of prolactin concentration in human serum. Annals Clin Biochem 16:113-121.
24. Fitzgerald R. L. and Herold D. A. (1996). Serum total testosterone: Immunoassay compared with negative chemical ionization gas chromatography mass- spectroscopy. Clin. Chem. 42(5): 749-755.
25. Peter A., Frohlich M., Doring A. *et al.,*(2001). Particulate air pollution is associated with an acute phase response in men, results from the Monica-Augsburg study Eur. Heart Journal. 22: 1198-1204.

Table 1: Compliance with safety measures by volunteers in experimental groups one and two while working

Variables	Response of volunteers	Frequency (n=60)	Percentage
Use of leather hand gloves	YES NO	I2 48	20 80
Use of particles mask	YES NO	12 48	20 80
Use of long sleeve jackets	YES NO	6 54	10 90
Use of goggles	YES NO	60 0	100 0
Use of helmets with dark ultra violet filtering face plate	YES NO	0 60	0 100

Key:
n= number of volunteers in both experimental groups one and two

Table 2: The plasma values of biochemical parameters measured in the control group compared with the experimental group one

Parameters	Control Group (n=30)	Experimental Group (n=30)	Remark
ALT (U/l)	9.50 ± 1.04	9.52 ± 1.05	NS
AST (U/l)	8.92 ± 0.95	8.95 ± 0.97	NS
ALP (UI/L)	12.10 ± 1.78	12.13 ± 1.79	NS
CRP (mg/L)	4.00 ± 0.18	4.02 ± 0.20	NS
Urea (mmol/L)	9.50 ± 1.04	9.53 ± 1.05	NS
Creatinine(μmol/l)	8.92 ± 0.95	8.95 ± 0.97	NS

Keys:
Values are in mean ± SD
NS= not significant
ALT = alanine aminotranferase
AST = aspartate aminotransferase
ALP = alkaline phosphatase
CRP = C-reactive protein

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Table 3: The plasma values of hormonal profile status measured in the control group compared with the experimental group one

Parameters	Control Group(n=30)	Exp Group(n=30)	Remark
LH(mIU/ml)	7.10 ± 0.77	7.11± 0.78	NS
FSH(mIU/ml)	3.20 ± 1.02	3.22 ± 1.05	NS
PROL(ng/ml)	3.05 ± 0.98	3.08 ± 1.02	NS
TESTO(ng/ml)	5.32 ± 1.35	5.30 ± 1.32	NS

Keys:
Values are in mean ± SD
NS= not significant
Exp Group=Experimental Group
n=number of volunteers
LH = luteinizing hormone
FSH = follicle stimulating hormone
PROL = prolactin
TESTO = testosterone

Table 4: The plasma values of biochemical parameters measured in the control group compared with the experimental group two

Parameters	Control Group (n=30)	Experimental Group (n=30)	Remark
ALT (U/l)	9.50 ± 1.04	18.00 ± 2.02	S
AST (U/l)	8.92 ± 0.95	16.00 ± 1.84	S
ALP (UI/L)	12.10 ± 1.78	47.10 ± 3.79	S
CRP (mg/L)	4.00 ± 0.18	13.52 ± 2.02	S
Urea (mmol/L)	9.50 ± 1.04	18.74 ± 2.05	S
Creatinine(μmol/l)	8.92 ± 0.95	16.95 ± 1.97	S

Keys:
Values are in mean ± SD
S= significant
n= number of volunteers
ALT = alanine aminotranferase
AST = aspartate aminotransferase
ALP = alkaline phosphatase
CRP = C-reactive protein

Table 5: The plasma values of hormonal profile status measured in the control group compared with the experimental group two

Parameters	Control Group(n=30)	Exp Group(n=30)	Remark
LH (mIU/ml)	7.10 ± 0.77	7.12± 0.80	NS
FSH(mIU/ml)	3.20 ± 1.02	3.22 ± 1.05	NS
PROL(ng/ml)	3.05 ± 0.98	3.07 ± 1.00	NS
TESTO(ng/ml)	5.32 ± 1.35	2.10 ± 0.78	S

Keys:
Values are in mean ± SD
NS= not significant
S=significant
Exp Group=experimental Group
n=number of volunteers
LH = luteinizing hormone
FSH = follicle stimulating hormone
PROL = prolactin
TESTO = testosterone

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Table 6: Percentage of volunteers in experimental groups one and two with abnormal values compared to the reference ranges for the parameters measured

Parameters	Exp Group 1 (n=30)	Percentage	Exp Group 2 (n=30)	Percentage
ALT (U/l)	*2	7	*15	50
AST (U/l)	*2	7	*15	50
ALP(IU/L)	*2	7	*15	50
CRP (mg/L)	*4	13	*20	67
Urea(mmol/L)	*2	7	*15	50
Creatinine(μmol/l)	*2	7	*15	50
LH(mlU/ml)	0	0	0	0
FSH(mlU/ml)	0	0	0	0
Prolactin(ng/ml)	0	0	0	0
Testosterone(ng/ml)	**4	13	**18	60

Keys:
n = number of volunteers
Exp Group = experimental group
**= number of volunteers with values greater than the maximum reference ranges for the parameters measured*
***= number of volunteers with value lesser than the minimum reference range for the parameter measured*
ALT = alanine aminotranferase
AST = aspartate aminotransferase
ALP = alkaline phosphatase
CRP = C-reactive protein
LH = luteinizing hormone
FSH = follicle stimulating hormone
PROL= prolactin
TESTO = testosterone

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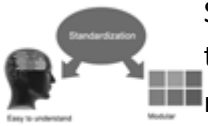


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Abstract: This summary should be two hundred words or less. It should clearly and briefly explain the key findings reported in the manuscript and must have precise statistics. It should not have acronyms or abbreviations. It should be logical in itself. Do not cite references at this point.

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- Fundamental goal.
- To-the-point depiction of the research.
- Consequences, including definite statistics—if the consequences are quantitative in nature, account for this; results of any numerical analysis should be reported. Significant conclusions or questions that emerge from the research.

Approach:

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Approach:

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Approach:

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References	Complete and correct format, well organized	Beside the point, Incomplete	Wrong format and structuring

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