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RESEARCH ARTICLE

ABDOMINAL COMPARTMENT SYNDROME , EVALUATION AND MANAGEMENT BY EMERGENCY PHYSICIAN

Bayan Hussain Filimban[1], Abdulrahman Salem Abdulhadi[2], Hoda Jehad Abousada[3], Othman Mohammed Adawi[4], Sarah Mansour Altowairgi[5], Fawaz Hassan Alali[6], Abdullah Saeed Alghamdi[7], Sami Rdah Almalki[8], Nazeha Khalid Bamohsen[9], Wejdan Hassan Alzahrani[10], Nouf Adnan Almandeel[11], Sinhat Sultan Alotaibi[12], Rabab Mohammed Aljumaia[13], Abdulrahman Nabeel Qutub[14] and Mohammed Khalid Almutairi[15]

1. Consultant Emergency Medicine, king Abdullah Medical complex, Jeddah, KSA.
2. Emergency medicine, Senior resident, SFH, Mecca, KSA.
3. Obstetric and Gynaecology, KFSHRC, KSA.
4. MBBS, Medical Doctor, Khulais general hospital, Makkah , KSA
5. MBBS, Medical Doctor, Imam Abdulrahman Alfaisal Hospital, Riyadh, KSA.
6. MBBS, Medical Doctor, King Khaled Hospital , Al-Kharj, KSA.
7. MBBS, Medical Doctor, King Fahad Hospital, Albaha, KSA.
8. MBBS, Medical Doctor, ER Registrar, Armed Forces Hospital in Wadi Al-Dawasir , Riyadh, KSA.
9. MBBS, Post Graduate, ISNC, Jeddah, KSA Nazehakhalid.
10. MBBS, Medical Intern, Royal College Of Surgeons In Ireland, Ireland.
11. MBBS, Medical Intern, king Saud bin Abdulaziz university for health sciences, Jeddah, KSA.
12. MBBS, Medical intern , Fakeeh collage for medical science, Jeddah, KSA.
13. MBBS, Medical Intern, Collage Of Medicine , Mansoura University, Egypt.
14. MBBS, Medical intern, king saud bin abdulaziz university for health and science, Jeddah, KSA.
15. Medical Student, Senior, ISNC, Jeddah, KSA.

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Abstract

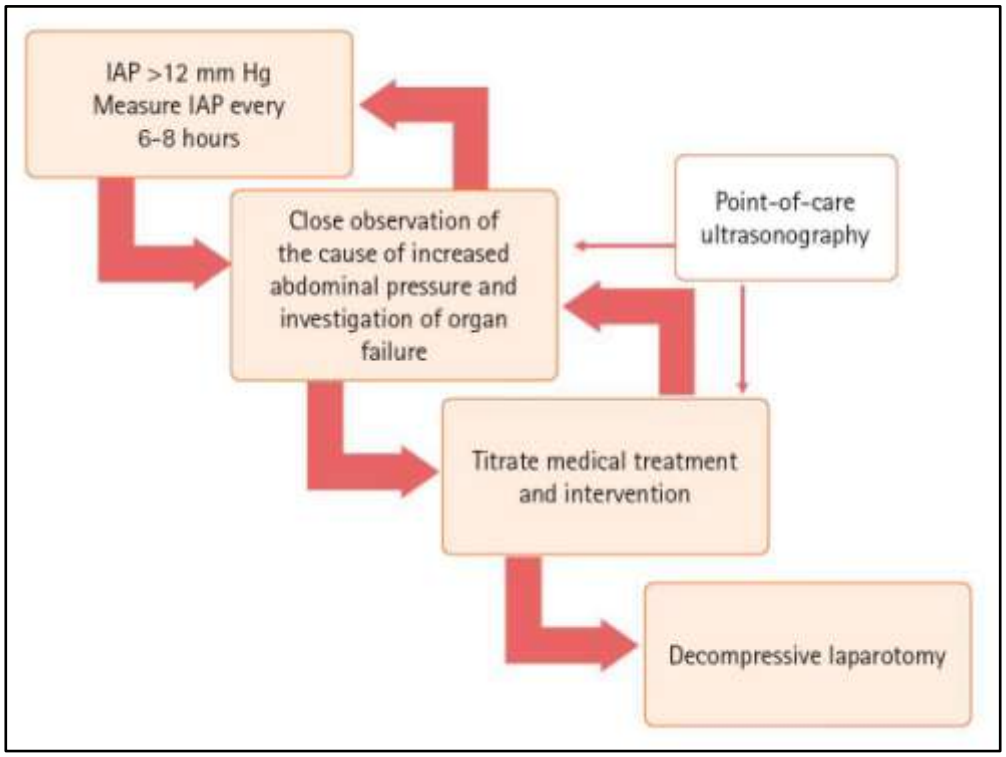
A number of developments have been made in the recent times for the detection and management of ACS. Avenues like WSACS have stated clear guidelines and recommendations for measurement and detection of ACS. Inspite of this a number of patient facing organ failure and even death. A report from WSACS states that the lack of concerned medical knowledge for ACS and IAH had resulted in more deaths and increased prevalence. This present study evaluates the scenario of ACS and IAH in the emergency department of hospitals in Saudi Arabia. Study encompasses exploratory research design and based on secondary data. Findings of the study will assist in developing system for training and development of emergency department physicians so that more lives should be saved.

Corresponding Author:- Hoda Jehad Abousada
Address:- Obstetric and Gynaecology, KFSHRC, KSA.

Introduction:-

In the present times, issues like failure of organs, deaths and even the increased risk factors are identified in many of the patient because of ACS (Abdominal Compartment Syndrome) and IAH (Intra-abdominal Hypertension). Out of these two the impact of ACS is comparatively serious and at the same time it is not frequent. Then on the other hand the prevalence of IAH is more common and gets converted into ACS. **[1], [5]** In most of the cases the patients are liable to incur huge amounts in the detection and cure of the above and at times this becomes the reason of increase in the risk and high level prevalence. In many of the cases IAP (Intra-Abdominal Pressure) readings are not taken on a serious note, whereas the patient data should be closely observed by the experts and respective results should be taken care of with utmost seriousness. **[3]** A number of developments have been made in the recent times for the detection and management of ACS. **[2], [4]** Avenues like Abdominal Compartment Society and the World Society of the Abdominal Compartment Syndrome (founded in 2004) are continuously working on the advancement, research, education and awareness of ACS and IAH. A report from WSACS states that the lack of concerned medical knowledge for ACS and IAH had resulted in more deaths and increased prevalence. The study **[6], [22]** states that there was a clear gap found in the knowledge, diagnosis and experience about ACS and IAH, in many of the cases IAP monitoring was found missing. The agency, WSACS had published various recommendations from 2013 to 2022 for the detection and knowledge about ACS and IAH. **[3]**

In the last few decades a number of surveys were done in this regard my different agencies but they were area specific and based on the data collected at local region. This may have resulted in a shorter span of knowledge for physicians, may be within one region or one country. **[11]** But the recommendations of WSACS were based on a global level study and till now the recommendations are being followed by the physicians. **[3]**The extent to which clinical physicians are aware of the definitions and recommendations of the WSACS guidelines remains unknown, despite their widespread acceptance. Furthermore, it's unclear how and when physicians use ACS and IAH, whether they believe these definitions and recommendations are important, and whether they believe they are applicable to patient care. **[6], [7]** Consequently, hospital-specific ACS treatment remains controversial. Numerous studies have been conducted to determine the current level of ACS and IAH evidence-based medicine awareness, knowledge, and application. One of the most noteworthy findings of these studies was that there was a lack of knowledge regarding IAP measurements and the available treatments for IAH and ACS. **[8], [13]** There are differing views on the use of different temporary abdominal closure devices and the reasons for open abdomen treatment. **[7]**



Source: https://www.accjournal.org/journal/view.php?number=1497

Figure 1; Management of ACS and IAH at the ED

According to the majority of recent research, health care professionals are now more aware of the standards, but they are either not consistently applying them or do not fully understand them. **[9]** The knowledge and practices of physicians in the Middle East regarding IAH/ACS have not been studied before. Because ACS is known to be an independent predictor of death, failure to identify and treat it in a timely manner may result in a poor prognosis. Strong clinical suspicion should be combined with surveillance and providing treatment to the respective patients. This present study focuses on the awareness, knowledge and experience of the physicians for determining and treating ACS and IAH in Saudi Arabia.For the last few years, healthcare system of Saudi Arabia in undergoing many important changes and reforms and the motive is to fulfill the expectations of Saudi Vision 2030. **[10]** There are different directives and frameworks that are decided to reach this avenue. The major focus is on the enhancement of quality in cases of critical care and maintaining the international standards of the same. As a matter of fact this overall improvement and development is not sufficient enough to detection and treatment of ACS. The level are still inconsistent, specially in the emergency departments and ICUs. This can be because of the less exposure, minimal training and even the dearth of respective protocols i.e. may not be aligned to the guidelines of WSACS. There is an urgent need for physicians in the emergency departments to become more versed with the variables of assessment, become more aware and train for the dynamics of IAP, so that they can get a chance to detect the presence of ACS and IAH. **[13], [14]**This review study attempts to gather the findings of previous regional and international research and provide insights into the current state of ACS evaluation and management in Saudi emergency care settings, in addition to assessing the body of existing literature that is specific to Saudi Arabia.

Objective:-

The main objective of this research is to critically analyze the clinical practices and data currently available regarding the diagnosis and management of ACS by emergency physicians, with a focus on the healthcare delivery system in Saudi Arabia.

Research Methodology:-

Research Design:-

This present study uses the exploratory research design as the the motive of the study is to synthesize the existing literature and in terms of evaluation and management of ACS (Abdominal Compartment Syndrome) by the physicians engaged in emergency departments. The study will assess various recent studies to reach the clinical practices, adoption of guidelines and level of knowledge and experience among various healthcare workers. By compiling and analyzing facts and figures from previous studies the researcher will try to present the current scenario of the same.

Area of Study:-

As the study is based in Saudi Arabia, hence the researcher will include most of the studies conducted in the context of Saudi Arabia, some of the international studies will be conducted to compare the subject matter and advancements in the field. Also the review's scope is contextualized in taking into account the country's growing embrace of health technologies and continuing healthcare transformation under Vision 2030.

Criteria for Inclusion and Exclusion

Inclusion:-

- ✧ Articles published in the duration of 2015 to 2024.
- ✧ Articles published in English language will be considered.
- ✧ Articles addressing components like ACS, IAH and emergency physician practices will be included.
- ✧ Studies that make particular reference to the healthcare system in Saudi Arabia or Middle Eastern region.

Exclusion:-

- ✧ Studies not related to ACS or IAH
- ✧ Full-text studies are not available.
- ✧ Articles prior to 2015.
- ✧ Opinion articles, and non-academic commentary.

Sources of Data:-
The researcher reached out to a number of electronic sources of data, some of them are PubMed, Web of Science, Saudi Digital Library (SDL) , Ministry of Health (Saudi Arabia) official documents and related documentation and reports from WHO, etc.

Important Keywords:-
"Abdominal Compartment Syndrome", "ACS", "Emergency Physician" OR "Critical Care", "Intra-abdominal Hypertension" OR "IAP" and "Saudi Arabia" "ACS guidelines".

Extraction of Data:-
Most of the studies will be searched for components like:
a. application of WSACS recommendations
b.Detection techniques or monitoring systems like IAP measurements.
c. Evaluation and management of ACS and IAH

Discussion:-

ACS can be dangerous enough if not detected at an early stage, this stands true in the conditions where the emergency medicines are under a lot of pressure and the respective environment is changing very fast. **[15], [9], [11]** It is evident from many of the sources **[6], [21], [12]** that the technology involved in medical treatment and detection is changing and developing very fast and systematic patterns are being followed for the detection and treatment of various diseases. In such a scenario there is a dire need to follow the recommendation and guidelines as stated for World Society of the Abdominal Compartment Syndrome (WSACS) as this is very important for the management and evaluation of ACS and IAH. As a matter of fact, in the present scenario remain inconsistent in overall system of healthcare and the patients are becoming the main sufferers. **[5]**

Some of the previous studies **[20], [13], [7]** have reflected that IAH and its conversion to ACS can result in the failure of multiple organs, patient might suffer for long in ICUs and even lead to death and increase in the mortality rate. The doctors or physicians engaged in the emergency departments do have a vital role to play in this regard, as they are the first respondents and liable to know about the conditions of ACS and IAH. It is evident by the virtue of various studies **[22], [23], [14]**that less emphasis is given on the routine IAP measurements and there is less familiarity with the WSACS recommendations, at times this delays the right kind of interventions and major challenges can occur in the treatment process. Like IAH can be simply detected a basic bladder pressure measurement but such a basic technique is not incorporated in the protocols of standard evaluation in the emergency departments of Saudi hospitals. **[18]**

In case of Saudi Arabia, it can be stated that the research is in the development stage and the respective recommendations are being incorporated also, but still there is a need to expedite the process. **[22]** Still there is a need to conduct high level medical studies, that are long term and capable of recommending systems to save more lives. In case of certain review **[7], [8]** studies at local level suggest that in the present times, awareness about the ACS and IAH is growing and the emergency departments at different hospitals are responding to the same with utmost care. But still there are gaps to be filled by more concerned and to the point research studies that can guide the physicians in this regard. **[5]** The healthcare infrastructure of Saudi Arabia is evolving as per the directives of Saudi Vision-2030 where the utmost importance is given to the critical care and removing the shortcomings in training and development of physicians for preparing them to face the high risk conditions of ACS. **[2]** In the present times detection of ACS and IAH is based on the basic clinical judgement and lacks the dependency on structure system of IAP monitoring. Even the detection is late enough to harm the the internal organs of the patient or even lead to death.

Then on the other hand some of the studies **[13], [9], [24]** have indicated issues and raised concerned about the risk associated to low detection of ACS and knowledge about the associated risks. This even stands true is cases where the patient is suffering from severe trauma, high resuscitation of fluid, sepsis of acute level and even surgery for abdominal inconsistency. The doctors or physicians engaged in the emergency departments try a number of measures in such cases like stabilization of airways, control measures for hemorrhage, etc. but still there is a chance that the assessment of of abdominal pressure is overlooked. Such delay or overlooking may result in organ damage or even death. Such a scenario call for the serious intervention of processes where the IAP measures are taken and the assessment of the same should be followed for care of the patient. **[16]**

An additional significant theme in the literature is differing opinions regarding the indications for decompression laparotomy and temporary abdominal closure (TAC) procedures. **[14], [7]** Some studies have found that emergency and trauma physicians are hesitant to begin early surgical consultations, sometimes due to institutional limitations or a lack of experience. Saudi rural and urban hospitals provide different surgical support and interdepartmental collaboration. Multidisciplinary collaboration is crucial for the best patient outcomes, particularly between surgeons, intensivists, and emergency physicians. **[5]**

Additionally, a number of studies **[21], [9], [22]** have demonstrated that although WSACS standards are thorough, local implementation of them is not always consistent. Many emergency doctors are unfamiliar with the full set of WSACS recommended criteria, IAH grading, and tiered therapy. By incorporating these into regular training sessions, simulation workshops, and continuing medical education (CME) credits, ACS detection and management should be significantly enhanced. Saudi Arabia's national healthcare digitalization agenda has put the country in a strong position to introduce consistent, evidence-based practices in all emergency departments. **[8]**

Furthermore, this review discovered that while ACS knowledge is expanding globally, clinical practice does not always use it. According to several studies, physicians may not always use therapy or surveillance techniques even though they are aware of the theoretical foundations of ACS. Lack of resources, outdated advice, or a lack of confidence in the application of international standards to specific patient circumstances could all contribute to this discrepancy. The gap mentioned above in between knowledge and practice can not just be eradicated by the way of education rather a better policy framework is required where the proper management of ACS is included, algorithm based electronic systems should be there that can detect the trauma and guide the physicians to take better care of the patients and respond at the earliest. **[17]** There is an utmost requirement of such system in the emergency department of the hospitals in Saudi Arabia. Hence it can be stated that there is a dire need of a system where case based evaluation reports are present for ready reference of the physicians, installation of IAP tools for measurement of the same to a precise level and training of the physicians is a must. All such measures will certainly lead to early detection of ACS and IAH in the emergency department and many of the lives can be saved. **[21]** This will also enable the physicians to track the medical records and provide treatment to the patient in time. With continued commitment to evidence-based practice, interdisciplinary cooperation, and healthcare system reform, Saudi Arabia can position itself as a leader in the timely and effective management of this life-threatening condition. **[3], [11]**

Conclusion:-

ACS or Abdominal Compartment Syndrome remains a most critical and less diagnosed condition by the physicians engaged in the emergency department of hospitals in Saudi Arabia. There are several guidelines available for the detection of ACS or IAH but still the dearth of training and clinical experiences the patient are facing the conditions of organ failure or even death. This present highlights some of the important measures in this regard and states that necessary and important steps should be taken at the policy level by MoH, electronic monitoring system (as per the recommendations of WSACS) should be provided to the physicians at the emergency departments and proper clinical training should be given to them. Despite the critical role emergency physicians play in early detection and response, problems with inconsistent intra-abdominal pressure monitoring use and inadequate adherence to WSACS protocols persist. Improved clinical training, the use of standardized diagnostic tools, and the promotion of interdisciplinary collaboration are all necessary to improve outcomes. The reduction of these disparities through education and institutional change will be necessary to lower ACS-related morbidity and mortality in Saudi Arabia's emergency settings.

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