Original Article: Intensive Care Nursing, Golden Points of Clinical and Mining

Alfred Atlinkson

Sustainable Infrastructure, Department of Medicine, Swinburne University of Technology, Melbourne, Australia

Use yor device to scan and read the article online

Citation A. Atlinkson, **Intensive Care Nursing, Golden Points of Clinical and Mining,** *EJCMPR* . 2023; 2(5):194-202.

https://doi.org/10.5281/zenodo.8263002

Article info:
Received: 01 Jun 2023
Accepted: 18 August 2023
Available Online:
ID: EJCMPR-2308-1085
Checked for Plagiarism: Yes
Peer Reviewers Approved by:
Dr. Frank Rebout
Editor who Approved Publication:
Dr. Frank Rebout

Keywords:
Care Nursing, Golden Points, Clinical and Mining, Control vital signs

ABSTRACT

To evaluate the work of the left ventricular muscle, aortic and mitral valves or open coronary arteries. This method is used to assess the patient's condition before and after heart surgery. In both left and right heart catheterization methods, there is a possibility of allergic reaction to the contrast agent in the form of nausea, vomiting, flushing, burning sensation, numbness, hives and itchy skin. Anaphylactic shock rarely occurs, so after the use of osmotic diuretics and hydration of the patient helps to expel the contrast agent faster. The patient should fast for 8-12 hours. Tell the client to lie on a firm bed for about 2 hours, give a sedative usually diazepam (5 to 10 mg) and diphenhydramine (25 to 50 mg), and stop taking anticoagulants such as warfarin 48 hours before. Work or only patient PT is 18 seconds. Explanation to the patient There is a strong desire to cough (catheterization of the heart) when the contrast agent is injected. Sudden onset of urination and urination, which resolves within a few minutes. Control vital signs of having an open and suitable vessel, measuring height and weight to calculate the appropriate amount of medication. Explain to the patient that he or she will sometimes feel a throbbing sensation in the chest. This palpitation is due to the extrasystoles that appear, especially when the tip of the catheter hits the ventricular wall. The patient is asked to cough or take deep breaths, especially after the contrast agent is injected. Coughing may interrupt the dysrhythmia and also help the contrast material to pass through the arteries.

Introduction

Check the entrance of the catheter for bleeding and clot formation, and the peripheral pulses of the limb have been manipulated [1-3]. Check the dorsal pulse of the dorsum and tibia in the lower extremities and the radial pulse in the upper extremities every 15 minutes for the first hour and then every 1 to 2 hours until it returns to normal [4-6]. To diagnose symptoms of arterial insufficiency, temperature, limb color, any patient complaints of pain, numbness and tingling in the affected limb [5-7]. Report changes to your doctor immediately. Take care of the dysrhythmia by controlling the monitor

***Corresponding Author: Alfred Atlinkson** (A.atlinkson.u@gmail.com)*

screen, touching the peripheral pulse, the heartbeat. Sometimes a vasovagal reaction occurs [8-10], including bradycardia, hypotension, nausea due to pain or dilatation of the bladder when the catheter is moved into the artery [11-13], especially when it enters the femoral artery, in which case the patient's foot should be immediately above the head and body Dad. Intravenous fluids and sometimes intravenous atropine were prescribed [14-16]. Bed rest should be maintained for 2-6 hours after the procedure. If manual or mechanical pressure is applied without ligation devices, the patient should be kept in bed with the foot straight and the head raised at a 30-degree angle [17-19]. For the patient's comfort, we rotate the patient from side to side, while the patient's leg is in a flat position, monitor the patient for the cause of kidney failure, and if there is a risk of increased blood urea and creatinine, record Careful absorption and excretion of fluids has been essential [20-22], and encourage the intake of oral and intravenous fluids to facilitate the excretion of contrast material through urinary output [23-25]. Advise the patient to seek help from others for the first time after bed rest after catheterization, as there is a risk of postural hypotension [26-28]. Avoid bending, forcing or lifting heavy objects for 24 hours. Avoid bathing in the bathtub, but can take a shower if desired.

Anatomy and physiology of the heart

- ✓ Heart size and weight are affected by age, sex, body weight, physical activity and disease [29-31].
- ✓ There is about 5-30 ml of fluid between the parietal and visceral pericardium to slide the two layers together.
- ✓ Papillary muscles and tendon cords cause the atrioventricular valves to close during systole [32].
- ✓ ٧٥ ٪ Coronary blood flow is provided during diastole, when the heart is dilated and less resistant.
- ✓ To establish adequate blood flow within the coronary arteries, the diastolic blood pressure must be at least 60 mmHg.
- ✓ The coronary arteries consume 70-80% of the oxygen they receive, compared to only 25% for other organs [33-35].
- ✓ The heart muscle fibers are regularly connected, so they contract and relax in a coordinated and appropriate manner.

1- Heart valves

There are two types of heart valves:

A) Ventricular atrium (tricuspid and mitral).

B) Semi-crescent or seminular (aortic and pulmonary) [36-38].

If the heart valves do not close completely and leak, they are called regurgatant or insufficient. Stiff valves that are unable to open completely are called stenotic. Each valve has flaps that intersect at each other called the commissure. The junction of the valves and the muscle wall of the heart is also called the annulus [39].

2- Excitability

Refers to the ability of the heart muscle to depolarize in response to a stimulus.

3- Automaticity

Refers to the ability of post-microbial cells of the heart to start a spontaneous impulse and repeat it without external neuro-hormonal control.

4- Conductivity

Refers to the ability of heart muscle fibers to transmit electrical impulses along cell membranes [40-42].

5- SAN (sinus-atrial node)

The main pacemaker, which is located at the junction of the superior vena cava with the right atrium. The impulses of this node are directed through the atria and special pathways (inter-node pathways) to the ventricular atrial node (AVN), which is located in the wall of the right

atrium near the tricuspid valve. After atrial contraction (0.7 second impulse interval in AVN), these impulses are transmitted to the ventricles. The waves travel from the branches to the end points of the conduction network (called the Purkinje network), causing the ventricles to contract [43].

6- Refractory period

It is the heart's failure to respond to a new stimulus, while it is still in the depolarization stage caused by the previous stimulus. It consists of two stages, absolute and relative. During the period of absolute excitability, the cells do not fully respond to any stimulus and continue from phase A to mid-phase III. During the period of relative irritability that begins at the end of phase III. If a stronger than normal electrical stimulation enters the cell, the cell may depolarize prematurely [44-46].

7- Cardiac cycle

The time period between the beginning of one contraction and the beginning of the next contraction is called a cardiac cycle. Each cardiac cycle consists of two phases, systole and diastole [47-49].

A) Diastole phase: It is divided into the following stages.

- ✓ Isoolomic ventricular relaxation.
- ✓ Rapid ventricular filling.
- ✓ Slow ventricular filling.
- ✓ Atrial systole.

It begins with the closing of the pulmonary and aortic valves, during which the myocardial muscle relaxes and the ventricular pressure decreases, but the pressure is higher than the atrial pressure. Therefore, the ventricular atrial valves are still closed [50-52]. As ventricular pressure continues to decrease and atrial pressure increases due to the accumulation of blood in the atrium, the ventricular atrial AV valves open and blood enters the ventricle rapidly. In the second stage, rapid filling of the ventricles occurs [53-55]. The third stage, called the slow filling stage of the ventricles, is called diastasis. Up to this point, blood enters the abdomen passively only due to pressure differences.

In the fourth stage, before ventricular contraction, the atrial systole stage occurs to enter 25% of the remaining blood in the atrium into the ventricle. This stage is called atrial kicking [56-58].

B) Systolic phase: It is divided into the following stages.

- ✓ Isovolumic contraction stage.
- ✓ Maximum ventricular emptying.
- ✓ Minimal ventricular drainage.

In the first stage, intraventricular pressure increases with myocardial traction. When intraventricular pressure exceeds aortic pressure and the aortic valve opens and maximal ventricular emptying occurs [59-61]. After draining the blood into the aorta, the intraventricular pressure decreases to the point of minimal ventricular emptying or protodiastole.

8- Cardiac output

The amount of blood drained from the left ventricle into the aorta per minute is called cardiac output.

Co = SVxHR

- ✓ Co: Cardiac output.
- ✓ SV: Impact volume.
- ✓ HR: Heart rate per minute [62].

9- Impact volume

The amount of blood that comes out of the ventricle during each contraction. The normal value of the impact volume is about 70 ml. The heart rate is 60-80 beats per minute and the average heart output of a person is about 5 liters. During exercise, cardiac output increases to 20 to 25 liters per minute. Cardiac output is affected by heart rate and stroke volume. On the other

hand, people with different bodies have different cardiac output, so you can use another formula in which the cardiac output is measured relative to the level of the whole body [63-65].

10- Cardiac index

Indicates cardiac output. It is obtained by dividing the cardiac output (in liters per minute) by the body surface (in square meters) [66-68].

11- End-diastolic volume (EDV)

At the end of diastole, each ventricle places about 120 cc of blood in the blood, this volume of work is called end-diastolic volume (EDV). The ventricle empties 2.3 of this volume during systole [69-71]. This fraction of blood that leaves the ventricle due to contraction is called the discharge fraction, and 1/3 of the blood remaining in the ventricle after contraction is called the residual volume.

SV = EDV-ESV

- ✓ SV: Impact volume.
- ✓ EDV: end volume of diastole.
- ✓ ESV: systolic end volume [72].

12- Factors controlling stroke volume

Three factors can affect stroke volume and therefore cardiac output, which are:

A) Preload: is the amount of elongation of myocardial fibers as a result of the return of venous blood back to the heart before systole. The greater the elongation, the greater the contraction of the heart [73-75]. (Frank Starling Law). Preload has a direct effect on impact volume. Preload is reduced by reducing the amount of blood returned to the heart [76].

B) Back load: The amount of pressure against which the left ventricle must pump blood out during systole. Diuretics, vasodilators, blood loss due to excessive sweating, vomiting, or diarrhea because the myocardial fibers to stretch, and the contractile force must be greater for the ventricle to drain its blood [77-79]. The higher the load, the smaller the impact volume. Causes of increased load are: narrowing of peripheral arteries, decreased myocardial contractile force, and decreased myocardial fiber elongation, increased blood pressure [80]. The relationship between afterload and volume is inverse. In arterial expansion, the impact volume increases due to reduced vascular resistance [81-83]. Systemic pressure resistance to left ventricular emptying is called systemic vascular resistance.

C) Contraction: is the force produced by the myocardium in contraction, sympathetic effects and some drugs such as digital increase this force. Heart cells, catecholamines, hypoxia and acidosis reduce this ability of the heart to contract [84].

Hemodynamic study

- ✓ Central venous pressure (CVP) assessment.
- ✓ Evaluation of pulmonary artery pulmonary capillary wedge pressure.
- ✓ Measurement of cardiac output.
- ✓ Measuring arterial pressure aggressively [85].
- ✓

CVP measurement

Central venous pressure, right atrial pressure and indirectly changes in right ventricular pressure and venous return to the right heart are measured [86-88].

Effective factors in CVP

Circulating blood volume, cardiac contractility and peripheral vasoconstriction ability [89].

- ✓ CVP is the best measure of circulating blood volume and the adequacy of venous blood return to the heart.
- ✓ Control of central venous pressure is valuable if it is measured at intervals and is consistent with the patient's clinical symptoms. A change in the CVP process

is much more valuable than high fixed values.

- ✓ CVP is a very late sign for HF.

Complications of CVP increase

The most common complications of CVP increase are: volume increase, sepsis, pulmonary embolism, air embolism, phlebitis, and dysrhythmia.

- ✓ The CVP catheter can be used for drug injection, serum uptake, and TPN due to the catheter's proximity to the central circulation.
- ✓ The normal amount of CVP is 2-10 cm of water.
- ✓ CVP measurement requires CVP placement through the central vein, which is sent through the basilica or jugular vein and, most often, the subclavian catheter into the superior vena cava or right atrium.
- ✓ To accurately measure CVP, the zero-manometer ruler must be level with the right atrium, and the right atrium is approximately in the fourth intercostal space, using the phlebostatic axis.
- ✓ Phleb and static axes are located at the intersection of two standard lines:

A) The line where the fourth intercostal space is drawn from the side of the sternum to the side and armpits [90].

B) A line between the anterior and posterior walls of the chest surface [91].

Evaluation of pulmonary artery pressure and pulmonary capillary pressure

Pulmonary artery pressure control is an important tool in critical care. To evaluate left ventricular function and diagnose shock-inducing action, the patient's response to medical therapies (such as fluid therapy or vasoconstrictors) is used. Pulmonary catheters are available in different models. The type of catheter is selected based on its ability, which includes heart rate [92-94], oxygen measurement, measurement of cardiac output, or capabilities [95].

Note: If the pulmonary catheter is placed in the correct position, CVP right atrial pressure, systolic pressure and diastolic artery, pulmonary artery and mean pulmonary pressure and capillary network wedge pressure can be measured. When a special thermal catheter is used, cardiac output, osmotic vascular resistance, and pulmonary vascular resistance can be measured [96].

Conclusion

In order for the heart muscle to contract effectively, it needs enough blood flow that the coronary arteries carry oxygen and blood to this muscle. Is one of the essential methods, especially before coronary artery bypass graft surgery? In this method, a contrast agent with a pad base is injected into a cavity of the heart or its arteries manually or automatically. It is usually done with a heart catheter. This common procedure involves selectively injecting the necessary substances into the coronary arteries. The tip of the counter is placed under fluoroscopy at the site of the left or right coronary arteries. After the contrast agent is injected, radiographic images are taken several times. This method is used to diagnose coronary artery stenosis, congenital anomalies of the coronary artery, coronary artery fistulas, and open coronary artery bypass grafts.

References

[1] F Safari, H Safari, *Eurasian Journal of Chemical, Medicinal and Petroleum Research,* **2022** 1 (2), 150-154 [Google Scholar], [Publisher]

[2] M Irajian, V Fattahi, *Eurasian Journal of Chemical, Medicinal and Petroleum Research,* **2023** 2 (3), 43-52 [Crossref], [Google Scholar], [Publisher]

[3] SA. Mahkooyeh, et al., *Eurasian Chemical Communications,* **2022**, 338-346, [Crossref], [Google Scholar], [Publisher]

[4] S. Saedi, A. Saedi, MM Ghaemi, MM Fard, *Eurasian J. Sci. Technol,* **2022** 2, 233-241 [Crossref], [Google Scholar], [Publisher]
[5] SA. Mahkooyeh, S. Eskandari, E. Delavar, M. Milanifard, FE. Mehni, *Eurasian Chemical Communications,* **2022** 338-346 [Crossref], [Google Scholar], [Publisher]
[6] MM. Fard, et al., *Journal of Chemical Reviews,* **2019** 3 (3), 181-195 [Crossref], [Google Scholar], [Publisher]
[7] M. Milanifard, *GMJ Medicine,* **2021** 5 (1), 391-395 [Crossref], [Google Scholar], [Publisher]
[8] E. Ghaibi, M.R. Soltani Manesh, H. Jafari Dezfouli, F. Zarif, Z. Jafari, Z. Gilani, *Eurasian Journal of Chemical, Medicinal and Petroleum Research*, **2022**, *1*, 33-39. [Google Scholar], [Publisher],
[9] F. Delborty, *Eurasian Journal of Chemical, Medicinal and Petroleum Research*, **2022**, 1, 100-109 [Google Scholar], [Publisher], [Crossref],
[10] K. Hashemzadeh, M. Dehdilan, *Eurasian Journal of Chemical, Medicinal and Petroleum Research,* **2022** 1 (5), 41-50 [Crossref], [Google Scholar], [Publisher]
[11] M. Irajian, V. Fattahi, *Eurasian Journal of Chemical, Medicinal and Petroleum Research*, **2022** 1 (5), 76-86 [Crossref], [Google Scholar], [Publisher]
[12] N. Mohsen, H. Jaber, M. Maryam, S. Elham, J. Amin, *Eurasian Journal of Chemical, Medicinal and Petroleum Research,* **2022**, 1 (5), 99-110 [Crossref], [Google Scholar], [Publisher]
[13] M. Nabiuni, et al., *Eurasian Journal of Chemical, Medicinal and Petroleum Research,* **2023** 2 (5), 1-15 [Crossref], [Google Scholar], [Publisher]
[14] M. Najafi, et al., *Brain Sciences,* **2023** 13 (2), 159 [Crossref], [Google Scholar], [Publisher]
[15] M. Nabiuni, J Hatam, *Iranian Journal of Neurosurgery*, **2023** 9, 15-15 [Google Scholar], [Publisher]
[16] M. Nabiuni, S Sarvarian, *Neurosurgery Quarterly,* **2014** 24 (2), 94-97 [Crossref], [Google Scholar], [Publisher]
[17] M. Nabiuni, S Sarvarian, *Global spine journal,* **2014** 1 (1), 019-021 [Crossref], [Google Scholar], [Publisher]
[18] F Rokhtabnak, S Sayad, M Izadi, SD Motlagh, P Rahimzadeh, *Anesthesiology and Pain Medicinem* **2021** 11 (5) [Crossref], [Google Scholar], [Publisher]
[19] S Sayad, M Panahi, R Nekouian, S Sayad, *Journal of Preventive Epidemiology,* **2020** 4 (2), e16-e16 [Google Scholar], [Publisher]
[20] S Pirirani, H Soleimankhani, A Motamedi Shalamzari, S Sayyad, *Biannual Journal of the Iranian Psychological Association*, **2019**, 13(2), 99-108 [Google Scholar], [Publisher]
[21] S Masoumi Jouibari, M Barahman, M Panahi, A Nikoofar, S Sayad, *Yafteh*, **2021**, 23, 161-169 [Google Scholar], [Publisher]
[22] S Sayad, M Abdi-Gamsae, et al., *Asian Pacific Journal of Cancer Prevention: APJCP*, **2021**, 22 (8), 2717 [Crossref], [Google Scholar], [Publisher]
[23] FB Ah Jalali, S Hassani, A Zare, T Ziaadini, The Seybold Report, **2014** 18 (04), 1634-1653 [Google Scholar], [Publisher]
[24] F Beiranvandi, Z Kuchaki, A Zare, E Khoshdel, A Jalali, Journal of Pharmaceutical Negative Results, **2022**, 4417-4425 [Crossref], [Google Scholar], [Publisher]
[25] FB SS Seyedian, A Akbar shayesteh, Elsevier, **2018**, 2526-2530 [Crossref], [Publisher]
[26] SS Beladi Mousavi, et al., Jundishapur Scientific Medical Journal (JSMJ), **2014** 13 (1), 11-20 [Crossref], [Publisher]
[27] M Jalessi, MS Gholami, et al., Journal of Clinical Laboratory Analysis, **2022** 36 (1), e24150 [Crossref], [Google Scholar], [Publisher]
[28] N Khayer, M Jalessi, A Jahanbakhshi, A Tabib khooei, M Mirzaie, Scientific Reports,

2021 11 (1), 20943 [Google Scholar], [Publisher]
[29] H Dabiri, BM Soltani, S Dokanehiifard, A Jahanbakhshi, M Khaleghi, Cell Journal (Yakhteh), **2021** 23 (4), 421 [Crossref], [Google Scholar], [Publisher]
[30] S Bijari, A Jahanbakhshi, P Hajishafiezahramini, P Abdolmaleki, BioMed Research International **2022** [Crossref], [Google Scholar], [Publisher]
[31] E Kola, J Musa, A Guy, I Kola, E Horjeti, V Filaj, M Alimehmeti, Medical Archives, **2021** 75 (2), 154 [Crossref], [Google Scholar], [Publisher]
[32] L Berdica, E Kola, D Nakuci, E Horjeti, M Alimehmeti, Cardio-Oncology, **2023** 9 (1), 1-4 [Google Scholar], [Publisher]
[33] E Kola, A Gjata, I Kola, A Guy, J Musa, et al., Radiology Case Reports, **2021** 16 (11), 3191-3195 [Crossref], [Google Scholar], [Publisher]
[34] J Musa, E Horjeti, A Guy, K Saliaj, D Shtiza, E Ceka, D Musa, L Rakovica, Journal of Pediatrics, Perinatology and Child Health, **2020** 4 (3), 52-57 [Google Scholar], [Publisher]
[35] J Musa, L Rakovica, L Hallunovaj, E Horjeti, Archives of Clinical and Medical Case Reports, **2020** 4, 774-778 [Google Scholar], [Publisher]
[36] E Kola, L Berdica, et al., ASMS, **2020** 4 (5), 45-48 [Crossref], [Google Scholar], [Publisher]
[37] E Kola, A Gjata, I Kola, et al., Radiology Case Reports, **2022** 17 (3), 1032 [Crossref], [Google Scholar], [Publisher]
[38] E Kola, I Kola, M Brati-Dervishi, et al., Journal of Surgery and Research, **2020** 3 (2), 140-146 [Crossref], [Google Scholar], [Publisher]
[39] D Nakuci, E Kola, E Horjeti, I Kola, B Shaipi, J Musa, A Guy, M Alimehmeti, Archives of Clinical and Medical Case Reports, **2020** 4 (5), 760-765 [Google Scholar], [Publisher]
[40] SM Bagheri, S Hassani, A Salmanipour, GSC Advanced Research and Reviews, **2022** 11 (3), 101-105 [Crossref], [Google Scholar], [Publisher]
[41] SH AH Maleki,A Gholami, M Mohammadi, A Farhiudian, Journal of pharmaceutical Negative Results, **2022** 13 (10), 4137-4158 [Crossref], [Google Scholar], [Publisher]
[42] S Hassani, M Rikhtehgar, A Salmanipour, GSC Biological and Pharmaceutical Sciences, **2022** 19 (3), 248-252 [Crossref], [Google Scholar], [Publisher]
[43] V Tajiknia, S Hassani, H Seifmanesh, A Afrasiabi, H Hosseinpour, J. Obstetrics Gynecology and Reproductive Sciences, **2021** 5 (9) [Crossref], [Google Scholar], [Publisher]
[44] A Jalali, S Hassani, S Albuzyad, A Moaddab, M Rajabzadeh, Pakistan Heart Journal, **2023** 56 (2), 906-919 [Google Scholar], [Publisher]
[45] SAK AH Jalali, AH Maleki, S Hassani, E Khoshdel, The seybold Report Journal, **2023** 18 (05), 999-1022 [Google Scholar], [Publisher]
[46] MR AH Jalali, S Hassani, S Albuzyad, A Moaddab, The seybold Report Journal, **2023** [Google Scholar], [Publisher]
[47] FB AH Jalali,S Hassani, A Zare,T Ziaadini, The seybold Report Journal, **2023** 18 (04), 1634-1653 [Google Scholar], [Publisher]
[48] A Ghasemzadeh, N Zabandan, AH Mohammadalizadeh, S Habibollahi, E Alamoutifard, MJ Namazi, M.R Soltani, Journal of Archives of pharmacy practice. **2020**;1:119 [Google Scholar], [Publisher]
[49] SM Shushtarian, M Reza soltani, MJ Namazi, Journal of Advanced pharmacy Education& Research. **2020**;10:(s2) [Google Scholar], [Publisher]
[50] S Moshar, MR Soltani, MJ Namazi, Journal of Advanced pharmacy Education & Research.**2020**; 10:(s2) [Google Scholar], [Publisher]
[51] S Habibollahi Khaled hamid,M Eghbalnejad Mofrad, SMA Alavi, MJ Namazi,

Journal of Advanced pharmacy Education & Research. **2021**;10 185-187 [Google Scholar], [Publisher]
[52] SAY Ahmadi; et al, Formerly Current Pharmacogenomics Journal.**2020**, 17(3): 197-205 [Crossref], [Google Scholar], [Publisher]
[53] S Sayad; et al, Archive of Oncology Journal.**2020** ;26(1): 6-9 [Crossref], [Google Scholar], [Publisher]
[54] M.E Akbari; et al, International Journal of Cancer Management.2016;9(6) [Crossref], [Google Scholar], [Publisher]
[55] S Sayad; et al, Annals of Research in Antioxidants Journal.**2019**; 4(2) [Crossref], [Google Scholar], [Publisher]
[56] M Karoobi; et al, Journal of Plastic, Reconstructive & Aesthetic Surgery. **2023** [Crossref], [Google Scholar], [Publisher]
[57] M Farbod; et al, Klinicka Onkologie: Casopis Ceske a Slovenske Onkologicke Spolecnosti Journal. **2022**, 35(3):181-189 [Crossref], [Google Scholar], [Publisher]
[58] S Sayad; et al, Asian Pacific Journal of Cancer Prevention: **2021**; 22, 2717–2722. [Crossref], [Google Scholar], [Publisher]
[59] M.E Akbari; et al, International Journal of Breast Cancer, **2017** [Crossref], [Google Scholar], [Publisher]
[60] Z Shormeij; et al, Iranian Journal of Cancer Prevention, **2018** 9 e5747 [Crossref], [Google Scholar], [Publisher]
[61] L Berdica, E Kola, D Nakuci, E Horjeti et al, Journal of cardio-oncology.**2023** 9(1) 1-4 [Google Scholar], [Publisher]
[62] E Kola, J Musa, A Guy, I Kola, E Horjeti, V Filaj, M Alimehmeti, Journal of Medical Archives.**2021** 75(2) 154 [Crossref], [Google Scholar], [Publisher]
[63] E Kola;et al, J Clin Rev Case Rep. 2019; 4(6):1-4 [Crossref], [Google Scholar], [Publisher]
[64] K Heshmat-Ghahdarijani, et al, Current Problems in Cardiology Journal. **2023** 48(8) 101739 [Crossref], [Google Scholar], [Publisher]
[65] A Rezazadeh Roudkoli, et al, Journal of preventive Epidemiology.**2022** 7(1) [Google Scholar], [Publisher]
[66] F HYSENI; et al, The Importance of Magnetic Resonance in Detection of Cortical Dysplasia, Curr Health Sci Journal. **2021**; 47(4): 585–589 [Crossref], [Google Scholar], [Publisher]
[67] J Musa;et al, Arch Clin Med Case Rep Journal, **2021** 5 640-648 [Google Scholar], [Publisher]
[68] M Valilo Zinat Sargazi; et al, Molecular Biology Reports Journal.**2023** 50 5407–5414 [Crossref], [Google Scholar], [Publisher]
[69] S Sotoudehnia Korani; et al, Journal of Preventive Epidemiology, **2022**,7(1) [Google Scholar], [Publisher]
[70] F Sada;et al, Challenging clinical presentation of Zinner syndrome, Radiology Case Reports.**2023** 18(1) 256-259 [Crossref], [Google Scholar], [Publisher]
[71] E Harizi; et al, Radiology Case Reports ۲۰۲۲ 17 (11) 4152-4155 [Crossref], [Google Scholar], [Publisher]
[72] I Ahmetgjekaj; et al, Radiology Case Reports.**2023** 18 (3) 1364-1367 [Crossref], [Google Scholar], [Publisher]
[73] D Aghamohamadi., M.K. Gol,. Int J Womens Health Reprod Sci, **2020**. 8(2): p. 227-31. [Google Scholar], [Publisher]
[74] D Alvandfar., M. Alizadeh, M. Khanbabayi Gol, The Iranian Journal of Obstetrics, Gynecology and Infertility, **2019**. 22(9): p. 1-7.[Crossref], [Google Scholar], [Publisher]
[75] K Hashemzadeh., M. Dehdilani, and M.K. Gol, Crescent Journal of Medical & Biological

Sciences, **2019**. 6(4). [Google Scholar], [Publisher]
[76] M Khanbabaei Gol., et al., The Iranian Journal of Obstetrics, Gynecology and Infertility, **2019**. 22(5): p. 52-60. [Crossref], [Google Scholar], [Publisher]
[77] M Khanbabayi Gol., F. Jabarzade, V. Zamanzadeh, Nurs Midwifery J, **2017**. 15(8): p. 612-9. [Google Scholar], [Publisher]
[78] A Mahmoodpoor et al., Indian Journal of Critical Care Medicine.**2016**; 20(11): 653. [Crossref], [Google Scholar], [Publisher]
[79] R Movassagi et al., Pakistan journal of medical sciences.**2017**; 33(5): 1117 .[Crossref], [Google Scholar], [Publisher]
[80] A Fathi, et al., International Journal of Adhesion and Adhesives, **2023**, 122, 103322 [Crossref], [Google Scholar], [Publisher]
[81] R Monirifard, M Abolhasani, et al., J Iran Dent Assoc **2019**; 31 (4):182-188 [Crossref], [Google Scholar], [Publisher]
[82] E Ghasemi, AH Fathi, S Parvizinia., J Iran Dent Assoc **2019**; 31 (3):169-176 [Crossref], [Google Scholar], [Publisher]
[83] HQ. Alijani, A. Fathi, et al. Bioref. **2022**. [Crossref], [Google Scholar], [Publisher]
[84] T Barakati, R. Khodadadi, et al., Turkish Online Journal of Qualitative Inquiry, **2021**, 12, 11401-11410. 10p. [Google Scholar], [Publisher]
[85] A. Aminian, et al., Nanomedicine Research Journal, **2022**, 7(2), 107-123. [Crossref], [Google Scholar], [Publisher]
[86] M Maalekipour, M Safari, M Barekatain, A Fathi, International Journal of Dentistry, **2021**, Article ID 3178536, [Crossref], [Google Scholar], [Publisher]
[87] A Fathi, Ebadian, S Nasrollahi Dezaki, N Mardasi, R Mosharraf, S Isler, S Sadat Tabatabaei, " International Journal of Dentistry, vol. 2022, Article ID 4748291, 10 pages, 2022. [Crossref], [Google Scholar], [Publisher]
[88] A. Fathi, et al., Dent Res J (Isfahan). **2023** 18; 20: 3. [Google Scholar], [Publisher]
[89] A.H Fathi; S. Aryanezhad; E Mostajeran; U Zamani Ahari; S.M Asadinejad. The Iranian Journal of Obstetrics, Gynecology and Infertility, **2022**, 25(2), 90-100. [Crossref], [Google Scholar], [Publisher]
[90] M Abolhasani, et al., J Iran Dent Assoc **2021**; 33, 51-57 [Crossref], [Google Scholar], [Publisher]
[91] B. Ebadian, A Fathi, Sh Tabatabaei, International Journal of Dentistry, **2023**, Article ID 3347197, 15 [Crossref], [Google Scholar], [Publisher]