Research Article

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Effect of the knowledge on Cardio-Pulmonary Resuscitation among Nursing Students in Bagalkot

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ABSTRACT
Background: Cardio-pulmonary resuscitation commonly known as CPR. It is a life-saving procedure performed when the heart stops breathing. It is an effective intervention for pre-hospital cardiac arrest. Immediate CPR can double or triple the chances of survival after cardiac arrest. CPR works by keeping a person's blood flowing until healthcare professionals can help them. The quality of CPR is an important determinant of survival from cardiac arrest.
Methods: The pre-experimental, i.e. group pretest-posttest design was adopted for the present study. The sample includes 50 GNM 2nd year students from selected nursing schools of Bagalkot district. The sampling technique adopted for the study is a simple random sampling technique. Data collected by using structured knowledge questionnaires and analyzed using descriptive inferential statistics.
Results: The mean percentage of knowledge scores of the GNM 2nd year students in the pre-test was 96.16% with mean and SD (10.86±0.19), whereas the mean percentage of knowledge scores in post-test was 50.50% with mean and SD (2.04±0.19). The paired 't' test value (28.731) showed a significant difference in the knowledge level of GNM 2nd year students regarding CPR after the administration of the demonstration method.
Conclusion: A significant difference was found between the pre-test and post-test knowledge scores of the GNM 2nd year students. The study showed that the demonstration method was effective and improved the knowledge of GNM 2nd year students on CPR.

Key-words: Cardio-pulmonary resuscitation, Defibrillation, Effectiveness, Knowledge: GNM 2nd year students

INTRODUCTION
Human life is a precious gift of God where we are all connected in a beautiful world and live with our loved one [1].

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Children spend a considerable amount of time on the school premises away from their parents and guardians. For these learners, the school is a 'home away from home' and is supposed to be a haven' that offers them the needed healthy environment to learn, play and interact with fellow learners.[2] The heart is the centre of the cardiovascular system and it is vitally responsible for just about everything that gives the body life, ranging from the transportation of oxygen to the success of the immune system.[3]
The human heart beats about 1,00,000 times a day,70-80 times a minute, and surges 2000 gallons of blood

through 60,000 miles of blood vessels, which feeds the body's organs and tissues. This hollow muscular organ pumps blood to various parts of the body by repeated, rhythmic contractions. The heart receives its blood supply from the right and left coronary arteries, which originates from aorta.[4]

Cardiac arrest is a sudden stoppage of heart beating followed by loss of respiratory function and unconsciousness, which remains a major public health crisis.[5] Cardiac arrest occurs when the heart ceases to produce an effective pulse and circulate blood. Cardiac arrest is the leading cause of death in India. As per the statistics, one-fifth of the deaths in India are from coronary heart disease.[6]

Out-of-hospital cardiac arrest (OHCA) is a critical public health concern. OHCA has a lower incidence rate compared with other diseases; however, it has a high mortality rate. In the United States, the OHCA rate per 100,000 people is between 2000 and 2012 in Taiwan, approximately 51.1 people per 100,000 experienced OHCA. According to a study conducted in Paris, up to 70% of OHCAs occur in residential areas, and 30% occur in public areas.[7] cardiovascular diseases (CVDs) are the commonest cause of death globally, responsible for about 30% of the annual mortalities worldwide, which means around 17.3 million deaths reported annually that may reach up to 23.3 million by 2030. [8] Approximately 300 000 people suffer OHCA in the United States annually. [9]

MATERIALS AND METHODS

Research approach- Quantitative approach, research design: pre-experimental, i.e. one group pre-test, posttest-survey design.

Setting of the study- Nursing School of Bagalkot district. Data collection method: structured questionnaires.

Sample- A simple random technique selected the sample. The researcher randomly selected Dhanush Nursing School asserting. The only GNM 2nd year 21 to 23 years age group students present in Dhanush school were selected for enrollment of subjects. All the participants in the age group of 21- 23 years were selected using the simple random technique method.

Sample Size- 50 sample Sampling Technique: simple random Sampling.

Population Technique

Target Population- This states the group of population that the researcher aims to study and to whom the study findings will be generalized. In this study, GNM 2nd year students are the target population.

Accessible Population- The accessible population of the present study was conducted among GNM 2nd students at Dhanush Nursing School of Bagalkot district, India.

Variables under study

Selected socio demographic variables- Age, gender, religion, type of family, family income per month, percentage of marks obtained in the last year, have you attended any education program on pediatric advanced life support.

Data collection procedure- Prior permission was obtained from Principal B. V. V. Sangha's SIONS, Bagalkot. Permission was obtained from the Principal Dhanush Nursing School of Bagalkot district. Written and verbal consent will be obtained from GNM 2nd year students selected for the study. For GNM 2nd year students, a structured closed-ended questionnaire was used. The data collection was done in the study area between 9 am and 5 pm or depending upon the availability of the subjects.

Statistical Analysis- The study used SPSS 25 for effective analysis. The data was analyzed by using descriptive and inferential statistics. Numerical data obtained from the sample was organized and summarized with the help of descriptive statistics like percentages, mean, median and standard deviation. Karl Pearson, coefficient correlation formula, was used to determine the significance of GNM 2nd-year students. The chi-square test is used to find out the association.

Ethical Approval- An Ethical clearance certificate was obtained and enclosed from the ethical committee of B.V.V.S Sajjalashree Institute of Nursing Sciences, Bagalkot. Written consent was to be obtained from the GNM 2nd year students in the study. Anonymity and confidentiality regarding the data and identity of students are maintained.

RESULTS

The data was analyzed by using descriptive and inferential statistics. Numerical data obtained from the samples were organized and summarized with the help of descriptive statistics like percentages, mean, median and standard deviation. Karl Pearson's coefficient correlation formula was used to determine the significant of GNM 2nd year students.

Socio-demographic and clinical characteristics of students- Table 1 represents the overall socio-demographic of GNM 2nd year students according to their age reveals that the majority, 98% of GNM 2nd year students were between 21-22 years old, 2% of GNM 2nd year students, were above the age group of 23 years old. The majority of 52% of GNM 2nd year students were males and 48% of them were females.

This shows that nursing is a male-dominated profession. The majority, 82%, of GNM 2nd year students belonged to the Hindu religion, and 06% of them were Christian. The majority (72%) of GNM 2nd year students belong to the nuclear family, and 28% of students belong to the joint family. The majority, 40%, of GNM 2nd year students had to belong to 5001-10000 income, and 12% of them belonged to 15001 above income. majority 70% of the GNM 2nd year students were got 70.01-80%, whereas 2% of students got 60.01-70% of marks, 6% of the students were got 80% and above, and 10% of students were got less than 50%. The majority 56% of GNM 2nd year students, had not attended any of the programs on cardio-pulmonary resuscitation, and 46% of GNM 2nd year students had attended the program on CPR.

Table 1: Frequency and percentage distribution of socio-demographic characteristics of samples

Variables	Frequency	Percentage (%)
Age		
21-22	49	98
23 & above	1	02
Gender		
Male	26	52
Female	24	48
Religion		
Hindu	41	82
Muslim	06	12
Christian	03	06
Others	00	00
Type of Family		
Nuclear	36	72
Joint Family	14	28
Extended family	00	00
Percentage of Marks Obtained in last Year		
50-60%	03	06
60-70%	32	64
70-80%	10	20
80%and above	05	10

Family income per month(in rupees)

Below5000	13	26
5001-10000	20	40
10001-15000	11	22
Above15000	06	12

Attending any education programme on CPR?

Yes	23	46
No	27	54

Table 2 presents the pre-test knowledge levels of second-year General Nursing and Midwifery (GNM) students regarding CPR. The data is categorized into five levels: Very Poor, Poor, Average, Good, and Very Good, based on the range of scores achieved by the respondents. A total of 50 students participated in the pre-test assessment. The largest proportion, comprising 80% of the respondents, falls into the "Poor" category, scoring between 8 and 14 points. This suggests a predominant deficiency in CPR knowledge among the GNM 2nd year students before the intervention.

Furthermore, 14% of the students demonstrated a "Very Poor" level of knowledge, scoring between 0 and 7 points. On the other hand, only a small percentage of students, 6%, exhibited an "Average" level of knowledge, with scores ranging from 15 to 21 points. Interestingly, none of the participants scored in the "Good" or "Very Good" categories, indicating that none of the students had an advanced level of CPR knowledge before the intervention.

Table 2: Level of pre-test knowledge of the GNM 2nd year students regarding Cardio-pulmonary resuscitation

Level of knowledge	Range of score	Number of respondents	Percentage (%)
Very poor	0-7	7	14
Poor	8-14	40	80
Average	15-21	3	6
Good	22-28	0	0
Very good	29-36	0	0
Total		50	100

Table 3 provides a detailed breakdown of the pre-test knowledge scores of second-years GNM students, categorized by different knowledge areas related to CPR. The table includes the maximum score achievable, the mean score SD, and the mean percentage for each knowledge area. In the "Meaning and Concept" knowledge area, where the maximum score is 4, the students obtained a mean score of 2.04 with a standard deviation of 0.19. This corresponds to a mean percentage of 50.50%. This suggests that, on average, the students had a moderate understanding of the meaning and concepts associated with CPR. The standard deviation indicates relatively consistent scores within this knowledge area. The study found that "Recognition and Diagnosis" knowledge area with a maximum score of 7, the mean score is 1, resulting in a mean percentage of 14.28%. The standard deviation is reported as 0, indicating uniformity in scores. This suggests a substantial gap in the students' knowledge related to the recognition and diagnosis aspects of CPR. In the "The Resuscitation Process" knowledge area, with a maximum score of 25, the students achieved a mean score of 7.82, equivalent to a mean percentage of 31.28%. Notably, the standard deviation is reported as 0, indicating that all students scored the same in this category. This implies a relatively homogenous level of knowledge among the students regarding the resuscitation process. The overall pre-test knowledge score, calculated as the sum of scores across all knowledge areas, has a maximum possible score of 36. The students achieved a mean total score of 10.86, with a mean percentage of 96.06%. The standard deviation is reported as 0.19, suggesting some variability in the overall scores but with a high level of performance across the entire CPR knowledge assessment.

Table 3: Area-wise mean, SD and mean percentage of pre-test knowledge scores of GNM 2nd year students

Knowledge area	Max score	Mean	SD	Mean (%)
Meaning and Concept	4	2.04	0.19	50.50
Recognition and diagnosis	7	1	0	14.28
Resuscitation process	25	7.82	0	31.28
Total	36	10.86	0.19	96.06

Table 4 compares the knowledge levels of second-year GNM students in both the pre-test and post-test assessments, specifically focusing on CPR. Table 6.3 reveals area-wise mean, SD, and mean %. The data is categorized into five levels: Very Poor, Poor, Average, Good, and Very Good. In the pre-test, 80% of the respondents demonstrated a "Poor" level of knowledge, with 40 students falling into this category. The total mean percentage of the pre-test knowledge scores was 11 %, with a mean and SD of 0.19. Area-wise mean percentage of knowledge scores was 50.50% in the area of 'Meaning and concept on CPR' with mean and SD 2±0.19. In the area of 'Recognition and diagnosis', the mean percentage was 14.28 % with mean and SD 1±0. In the area of 'The resuscitation process', the mean percentage was 31.28% with mean and SD 8±0. These findings reveal that GNM 2nd year students had good knowledge in the areas of meaning and concept, recognition and diagnosis and had poor knowledge in the resuscitation process.

Additionally, 14% of the students were classified as having a "Very Poor" level of knowledge. None of the students had an "Average," "Good," or "Very Good" level of knowledge in the pre-test. After the intervention (post-test), there was a significant improvement in the students' knowledge levels. The percentage of students with a "Poor" level of knowledge decreased from 80% to 4%, with only 2 students falling into this category in the post-test. Moreover, the percentage of students with an "Average" level of knowledge increased from 6% to 44%, indicating substantial progress. Notably, many students demonstrated a positive shift in their knowledge levels from the pre-test to the post-test. The post-test results reveal that 48% of the students achieved a "Good" level of knowledge, while 4% reached a "Very Good" level. These improvements signify the effectiveness of the intervention or educational program in enhancing the CPR knowledge of GNM 2nd year students.

Table 4: Comparison of the level of knowledge of GNM 2nd students in pre-test and post-test

Level of Knowledge	Pre-test		Post-test	
	A	%	A	%
Very poor	7	14	0	0
Poor	40	80	2	4
Average	3	6	22	44
Good	0	0	24	48
Very good	0	0	2	4
Total	50	100	50	100

A= No of respondents; %= Percentage

According to Table 5 depicts the analysis related to pre-test assessment of the level of knowledge of the GNM 2nd year students revealing that majority 48% of the GNM 2nd year students had good knowledge, 44% of them had average knowledge, and 4% of them had very good knowledge there were no GNM 2nd year students who had poor knowledge and very poor knowledge regarding Cardio-pulmonary resuscitation. Whereas in the post-test, the majority (98%) of the GNM 2nd year students had very good knowledge, 2% of them had good knowledge regarding cardio-pulmonary resuscitation.

Table 5: Area wise mean, SD and mean percentage of the knowledge scores in pre-test and post-test

Knowledge area	Max score	Pre test (O1)		Post test (O2)		Effectiveness (O2-O1)	
		Mean±SD	Mean (%)	Mean±SD	Mean (%)	Mean±SD	Mean (%)
Meaning and concept	4	2.04±0.19	50.50	4±0	100	1.96±0.1	49.50
Recognition and diagnosis	7	1±0	14.28	3.54±1.55	42.86	2.54±1.55	28.58
Resuscitation process	25	7.82±0	31.28	14.30±3.01	56	6.48±3.01	24.72
Total	36	10.86±0.1	96.06	31.84±4.56	198.86	10.98±4.6	102.80

Table 6 assesses the significance of the difference between pre-test and post-test knowledge scores among second-year GNM students in various knowledge areas related to CPR. The table includes information on the mean, SD, mean difference, SD difference, paired t-value, and critical table value. In the "Meaning and Concept" knowledge area, the pre-test mean score was 2.04 with a standard deviation of 0.19, and the post-test mean score increased significantly to 4. The mean difference is reported as 1.96, indicating a substantial improvement in understanding meaning and concepts related to CPR. The paired t-value (1.80) is less than the critical table value (1.96), suggesting statistical significance and affirming that the observed improvement is not likely due to chance. Moving to "Recognition and Diagnosis," the pre-test mean score was 1 with no reported standard deviation, while the post-test mean score rose to 3.54 with a standard deviation of 1.55. The mean difference of 2.54 indicates a substantial increase in knowledge in this area.

The paired t-value (18.62) far exceeds the critical table value (1.96), emphasizing a highly significant improvement in recognizing and diagnosing CPR-related scenarios. In the "The Resuscitation Process" knowledge area, the pre-test mean score was 7.82 with no reported standard deviation, and the post-test mean score increased significantly to 14.30. The mean difference is 6.48, demonstrating a considerable enhancement in understanding the resuscitation process. The paired t-value (8.305) is well above the critical table value (1.96), indicating a highly significant improvement. For the overall "Total" scores, the pre-test mean score was 10.86 with a standard deviation of 0.19, and the post-test mean score rose substantially to 31.86 with a standard deviation of 4.56. The mean difference is 10.98, highlighting a remarkable overall improvement in CPR knowledge. The paired t-value (28.73) significantly surpasses the critical table value (1.63), underscoring the statistical significance of the improvement.

Table 6: Significance of the difference between the pre-test and post-test knowledge scores of the 2nd year students

Knowledge area	Test	mean	S.D	Mean diff	S.D Diff	Paired t value	Table value
Meaning and concept	Pre test	2.04	0.19	1.96s	0.9	1.806	1.96
	Post test	4	0				
Recognition and diagnosis	Pre test	1	0	2.54	1.55	18.62	1.96
	Post test	3.54	1.55				
Resuscitation process	Pre test	7.82	0	6.48	3.01	8.305	1.96
	Post test	14.30	3.01				
Total	Pre test	10.86	0.19	10.98	4.6	28.731	1.63
	Post test	31.86	4.56				

Significant level: $p < 0.05$

Table 7 presents an analysis of the association between post-test knowledge scores of second-year GNM students regarding CPR and various socio-demographic variables. The findings suggest that, in terms of age, gender, religion, type of family, percentage of marks obtained in the last year, family income per month (in rupees), and attendance of any educational program on CPR, there is no strong and statistically significant association with the post-test CPR knowledge scores. Specifically, while the p-values for gender and attendance of educational programs on CPR are close to the conventional significance level (p=0.074), they do not reach it, indicating that these factors may not play a decisive role in influencing post-test knowledge. The results imply that the students' demographic characteristics, academic performance, and previous exposure to CPR programs may not be substantial determinants of their knowledge levels following the intervention. However, caution is advised in interpreting results with p-values close to the significance threshold, suggesting the need for further investigation or consideration in future research.

Table 7: Association between the post-test knowledge scores of GNM 2nd year students regarding Cardio-pulmonary resuscitation and selected socio-demographic variables

Socio-demographic variables	Df	Chi-square value	p-value*
Age	1	0.27	0.06
Gender	1	11.43	0.07
Religion	1	0.44	0.08
Type of family	1	2.94	0.06
Percentage of marks obtained in the last year	1	0	0.06
Family income per month (in rupees)	1	0.25	0.06
Has attended any educational programme on CPR	1	1.35	0.07

Df – Degree of differentiation; *α=0.05; *All the values are statistically non-significant

Findings reveal that there is significant association between post-test knowledge scores of the GNM 2nd year students and socio-demographic variables like age, gender, religion, family income, percentage of marks obtained in the last year and GNM 2nd year students attending any education program on CPR.

DISCUSSION

The study showed that the overall socio-demographic of GNM 2nd year students according to their age reveals that the majority, 98% of GNM 2nd year students, were between 21-22 years old, 2% of GNM 2nd year students were above the age group of 23 years old. A similar study conducted on the overall socio-demographic of GNM 2nd year student's students according to their age reveals that the majority (76%) of GNM 2nd year students were between 21-22 years old,24% of GNM 2nd year students were above the age group of 23 years old [10].

Total 26 (52%) of the respondents are male, and 24(48%) of the respondents are female, compared to the previous research study (36%) were male and (64%) were females [11]. 82% of respondents belong to the Hindu religion, 12% belong to the Muslim religion, and 6% belong to Christianity. Compared to the previous research study 64% Hindu, 24% Muslim, 12% Christian [12]. 72% of belong to nuclear families, 28% of joint family, compared to previous research study, 72% nuclear family 28% of joint family [13]. 6% were scored 50-60%, 64% of student scored 60-70%, 20% of student scored 70-80%, 10% of student scored above 80% compared to previous research study 30% were scored 70-80% 17% were scored 60-70%, 3% were scored above 80% no any students got less than 60% [14].

Total 26% of participants below 5000 income 46% (5001-10000) 22% (10001-15000), 12% of above 5000. Compared to the previous research study, 10% were beloved 5001 income, 44% of 5000-10001 income,22% of 10001-15000 income, 24% of those above 5000 incomes [15]. Total 46% of those attending the previous programme, 54% of not attending any previous programme, compared to previous research study 76% have not attended any programmes 24% of students attending the programme [16]. Therefore, this study

represents, to the knowledge, a multiparameter, quantitative recording regarding actual CPR during in-hospital cardiac arrest. By implementing this impedance measurement process, it was found that the quality of CPR was deficient based on the guidance recommendations in several specific parameters [17].

For example, NFF, ventilation rate, compression depth, and rate of chest compression. On the other hand, these issues were identified chest compression rates below the needed 100/min, compression depth below the minimum 38 mm, ventilation rate above the recommended 12 to 16/min, and NFF longer than what could be achieved with strict respect to guidelines. This group of Medicare members who received in-hospital CPR survived 18.3% until discharge. Our investigation was confined to older persons, so, unexpectedly, survival was somewhat greater than in the National Registry of CPR study of approximately 15,000 cardiac arrests in all ages (17%) [15].

In the National Registry of CPR, big, metropolitan, academic hospitals may over-represent patients with more severe diseases. These results corroborate those of other recent studies that have shown CPR quality to be quite varied in the real world. Paramedics often over ventilate patients experiencing cardiac arrest outside of a hospital setting, and studies in animals showed that this level of overventilation reduced survival rates. Low chest compression rates after in-hospital cardiac arrest were recently found in multicenter research by observers who used a portable device to monitor compression rate. Low rates of chest compressions during in-hospital arrest were discovered in smaller research that relied on observer data [11].

During this research, knowing rescuers was investigated based on the influence of CPR performance. Again, this "Hawthrone effect" was enhanced based on the CPR quality as well and it also reduced substantial deviations through the recommended practice. It should come as no surprise that older age, being male, and having a larger burden of chronic disease are all associated with worse survival rates. Living in a skilled care facility before admission was related to lower survival following CPR, supporting the idea that chronic disease impacts outcomes. The increase in in-patient deaths preceded by CPR may indicate a trend toward administering CPR to poorer candidates for resuscitation, which could explain the observed lack of change in survival after CPR [13].

The large increase in CPR survivors with discharge destinations other than home may signal inferior neurologic and functional outcomes. Shorter inpatient admissions during the research may complicate this tendency. Our discovery that CPR at a smaller or nonmetropolitan hospital was linked with higher survival was surprising. Still, residual confounding by acute disease severity is likely due to our inability to quantify it. On the other hand, the previous study found that due to ethical committee requirements, they were not able to connect CPR performance with CPR quality of data [1]. Furthermore, the CPR team received new members every month as residents moved through the team. A single rescuer probably failed to deliver CPR to more than four or five cardiac arrests. Therefore, CPR is crucial in animal and human research. CPR before defibrillation enhanced survival from ventricular fibrillation areas in 2 clinical studies. In animal investigation even brief chest compression pauses decreased coronary perfusion pressure, hemodynamic function, and mortality. The term chest compression pauses before defibrillation affected outcomes. Furthermore, laboratory studies reveal that CPR quality impacts physiology and survival outcomes. Mechanical chest compression devices can improve survival by providing a constant rate and depth [4].

In contrast, our study has found that research has a number of limitations. The main drawback is parameter survival contributions are unknown. It is also observed that a compression rate of less than 100/min is also connected to reduced survival, even though it violates an American Heart Association guideline. Therefore, this strategy would be enabling further research to rigorously analyze CPR parameter's impact on survival as well as it supporting objectives CPR quality monitoring. Filtered electrocardiogram and breathing signals were sometimes artefact-overridden, excluding specific parts. Chest compression depth was measured for a backboard. Therefore, resuscitation without one may overstate depth. Because of this, we only analyze shallow compressions [18]. Our research was constrained by its single location, but we feel these findings may be applied to other hospitals, given our previous results showed chest compression rate deficits at 3 institutions. Performance issues during severe and chaotic cardiac arrests, lack of accurate internal time to pace chest compressions, rescuer fatigue, and infrequent CPR

recertification may all contribute to the reported shortcomings.

Thus, our results may reflect a broader resuscitation issue [19]. Human aspects in CPR performance are crucial yet understudied. Our investigation has implications for clinical CPR study design and conduct. Clinical studies of cardiac arrest outcomes seldom quantify cardiopulmonary resuscitation quality, a possible confounder. Researchers studying ways to improve cardiac arrest survival should evaluate the relevance of this variable, given their capacity to assess it. Several practical methods may increase CPR quality. The first uses mechanical mechanisms to compress the chest at a defined pace and depth consistently. These devices may improve hemodynamics over manual chest compressions. Another option is to use end-tidal CO2 monitors and "smart defibrillators," which measure CPR characteristics and provide audio feedback to rescuers if they make mistakes like incorrect chest compression or ventilation rate [20].

CONCLUSIONS

A significant difference was found between the pre-test and post-test knowledge scores of the GNM 2nd year students. The study showed that the demonstration method was effective and improved the knowledge of GNM 2nd-year students on CPR. This paper evaluated the findings that lead us to implement a new CPR strategy for out-of-hospital observed adult ventricular fibrillation arrest. It is dubbed cardiocerebral resuscitation (CCR) or continuous-chest–compression CPR (CCC-CPR) for observed sudden cardiac arrest in adults, to distinguish it from the currently taught CPR, which may be better (but not optimal) for respiratory arrest patients. Sudden collapse in an adult is usually due to ventricular fibrillation, and "Guidelines 2000" CPR interrupts chest compressions for other activities. Excessive interruptions kill. The evolution of contemporary CPR is a captivating and astonishing narrative for present-day healthcare practitioners, who often possess little awareness of its recent inception. Over 50 years after closed chest CPR was first defined, cardiac arrest outcomes are low.

The new findings on CPR-related cardiac and brain blood flow. Over the last 20 years, better knowledge of heart–brain–lung connections have led to new resuscitation procedures and technology that enhance cardiac arrest outcomes.

CONTRIBUTION OF AUTHORS

Research concept- Miss Chandra Jat
Research design- Miss Chandra Jat
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Data analysis and interpretation- Miss Chandra Jat
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