Int J Clin Exp Med 2020;13(12):9553-9560
www.ijcem.com /ISSN:1940-5901/IJCEM0115389

Original Article

Effect of high-quality nursing in patients with cardiovascular interventional surgery during perioperative period

Juan Chen

Operating Room, Qinghai Provincial People's Hospital, Xining, Qinghai Province, China

Received June 1, 2020; Accepted September 10, 2020; Epub December 15, 2020; Published December 30, 2020

Abstract: Objective: To explore the effect of high-quality nursing in patients with cardiovascular interventional surgery during perioperative period. Methods: From June 2016 to June 2018, 92 patients with cardiovascular intervention who received high-quality nursing (observation group, OG) and 105 patients who received routine nursing (routine group, RG) were selected for prospective analysis. The nursing satisfaction, psychological state, incidence of adverse reactions, vital signs, hospitalization time and one-year readmission rate of prognosis were compared between the two groups. Results: The nursing satisfaction score in OG was significantly higher than that in RG ($P < 0.001$). There was no difference in HAMA score and incidence of adverse reactions at admission and heart rate at 1 day after operation between the two groups ($P > 0.05$). The HAMA score, systolic and diastolic blood pressure in OG were lower than those in RG 30 min before operation and 1 day after operation ($P < 0.05$), while the sleep time was higher than that in RG ($P < 0.05$). The hospitalization time in OG was significantly shorter than that in RG ($P < 0.001$), while the readmission rate of prognosis had no difference ($P > 0.05$). Conclusion: High-quality nursing can effectively improve the nursing satisfaction of patients undergoing cardiovascular interventional surgery and shorten their rehabilitation period, so it has great application value in future clinical practice.

Keywords: High-quality nursing, cardiovascular interventional surgery, adverse reactions, HAMA score

Introduction

Cardiovascular diseases, as a kind of diseases with great threat in the world, are extremely common among the middle-aged and elderly people at present [1]. Some data shows that the incidence rate of cardiovascular diseases has exceeded 8% at present, and it is increasing with the aging of global population [2, 3]. Cardiovascular diseases include hemorrhagic or ischemic diseases caused by hyperlipidemia, atherosclerosis, hypertension, etc., with high disability rate and lethality [4]. According to statistics, more than 15 million people die from cardiovascular diseases every year [5]. That's why cardiovascular diseases have long been a major research focus in clinical practice, and effective prevention and treatment methods have been sought at home and abroad. With the development of modern medical technology and the enhancement of clinicians' professional knowledge, interventional surgery has gradually become the mainstream for the treatment of cardiovascular diseases [6]. Cardiac interventional surgery is a new type of technology for diagnosis and treatment of cardiovascular diseases. It is delivered into the cardiac catheter through puncture of the body surface vessels under the continuous projection of digital subtraction, which is a method for the diagnosis and treatment of heart disease through specific cardiac catheter operation technology [7]. These include coronary angiography, percutaneous balloon mitral valvuloplasty, radiofrequency ablation, etc. [8]. At present, cardiovascular interventional surgery has made rapid progress and it has been widely applied in clinical practice. For most patients with atrial septal defect, ventricular septal defect and coronary heart disease, interventional surgery has the advantages of fewer traumas, shorter time, less pain and better recovery compared with traditional surgery [9]. Because of this, the application of cardiac

interventional surgery is more and more common [10, 11]. We are committed to carrying out continuous research to further improve the application of interventional surgery in cardiovascular diseases. In recent years, many studies have gradually focused on the intervention of surgical nursing. For example, nursing methods have improved the rehabilitation and prognostic effects of colorectal cancer, enterostomy and other operations in patients undergoing gastric cancer operation [12, 13]. However, there are few studies on the nursing of cardiovascular interventional surgery, so this study was designed to provide reliable theoretical guidance for future clinical practice by analyzing the influence of nursing intervention on cardiovascular interventional surgery.

Material and methods

Research participants

From June 2016 to June 2018, patients with cardiovascular diseases admitted to Qinghai Provincial People's Hospital were selected as the research participants for prospective analysis. A total of 274 patients were enrolled according to the inclusion criteria (patients were diagnosed with cardiovascular disease by blood pressure, electrocardiogram [14], echocardiography and other examinations in Qinghai Provincial People's Hospital; after admission, patients received cardiovascular interventional therapy; their age was 20-60 years old; patients agreed to cooperate with the experimental investigation and signed the informed consent form). A total of 197 patients were finally determined according to the exclusion criteria (comorbid with tumor, cardiovascular and cerebrovascular diseases, autoimmune defect diseases, with other infectious diseases and organ dysfunction; pregnant and lactating patients; patients who transferred to the hospital; patients with a history of surgery, radiotherapy and chemotherapy within six months after admission; patients with drug allergy; patients with low treatment compliance for mental disorders). This experiment has been approved by the ethics committee of our hospital, and all patients have signed the informed consent form.

Methods

The cardiovascular interventional surgery for patients was completed by senior cardiovascular doctors in Qinghai Provincial People's Hospital. Among the 197 patients, 92 patients received high-quality nursing during their visit and they were included in the OG. Another 105 patients received only routine nursing and they were included in the RG. Nursing contents (RG): The medical staff gave the patients diet guidance, environmental intervention, exercise guidance, disease monitoring, health education, psychological care and other routine interventions. Nursing contents (OG): Before operation, nursing staff allocated beds and wards for patients after admission, introduced department environment, hospital system, wardmate and medical staff, assisted patients to carry out various routine examinations and gave ECG monitoring to patients. 24 hours before operation, nursing staff introduced the operation process, operation plan, matters needing attention, cooperation methods and possible complications to the patient, so as to relieve the patient's doubts and emotions, improve the patient's cognition of the operation, make the patient psychologically prepared, improve the treatment compliance and cooperation degree, and promote the successful completion of the operation. The nursing staff communicated with the patient patiently before the operation. In particular, patients with negative emotions needed to be patient for counseling. Appropriate communication methods were selected according to the cultural background and personality characteristics of patients to divert patients' attention, relieve patients' negative emotions and keep them in a better state of mind to face diseases. During the operation, the nursing staff introduced the operating room environment to the patients after entering the operating room, eliminated the strangeness of the patients, strictly controlled the temperature and humidity of the operating room, informed the operation process to patients, encouraged the patients with body and language, relieved the patients' nervousness and improved the cooperation degree of the operation. According to the actual situation of patients, appropriate interventional catheters were selected to carry out the puncture in body surface vessels, and the catheter insertion was performed with digital silhouette assistance. In this process, the principles of uniform speed, slow speed and standardization were followed to prevent vascular injury of patients. All vital signs and clinical manifestations of patients were closely

Table 1. Comparison of baseline data between the two groups [n (%)]

	OG (n = 92)	RG (n = 105)	t or x^2	P
Age/years old	64.6±8.4	65.8±10.5	0.381	0.877
BMI (cm/kg^2)	25.16±3.54	24.84±4.26	0.570	0.569
Gender			0.442	0.506
Male	50 (54.35)	62 (59.05)		
Female	42 (45.65)	43 (40.95)		
Smoking habit			0.696	0.404
Yes	48 (52.17)	61 (58.10)		
No	44 (47.83)	44 (41.90)		
Drinking habit			0924	0.336
Yes	34 (36.96)	32 (30.48)		
No	58 (63.04)	73 (69.52)		
Family history				
Yes	27 (29.35)	35 (33.33)		
No	65 (70.65)	70 (66.67)		
Type of operation			0.775	0.856
Coronary angiography	22 (23.91)	26 (24.76)		
Stent implantation	24 (26.09)	22 (20.95)		
Radiofrequency ablation	37 (40.22)	45 (42.86)		
Valve replacement	9 (9.78)	12 (11.43)		

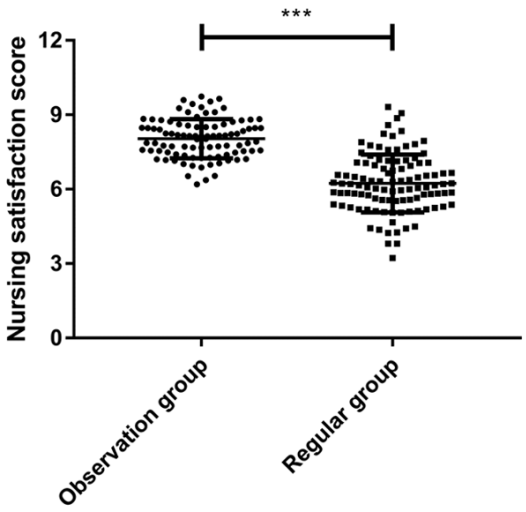

Figure 1. Comparison of nursing satisfaction scores between the two groups. *** represents a significant difference between the two groups, P < 0.001.

monitored during the operation to keep warm during the operation. If patients had abnormal conditions, the attending physician was immediately informed. After operation, the patient was escorted to the ward and the nursing handover was completed. After operation, nursing staff paid close attention to the patient's body feeling and incision condition, carried out ECG monitoring on the patient at the same time, and coordinated with the patient's family members to regularly adjust the patient's body position and turn over to avoid postoperative complications. According to the patient's disease recovery, dietary habits and other factors, targeted diet programs were developed to meet the daily nutrition needs, improve immunity and promote postoperative recovery of patients. Nursing staff followed the doctor's advice to guide patients to take drugs on time and in quantity, and emphasized the harm of increasing or decreasing drugs without permission, so as to improve patients' medication compliance. Nursing staff assisted the patients to correct their bad living habits and form correct living habits. Nursing staff assisted the patients to go through the hospitalization procedures, formulated review plan, rehabilitation guidance and life guidance for the patients according to the specific situation, and informed the patients to conduct regular review.

Outcome measures

Nursing satisfaction: The anonymous survey was conducted when the patient was discharged from hospital, with a full score of 10. The higher the score, the more satisfied the patient with the nursing service. The patient was graded according to the scoring results (8-10: satisfactory, 5-7: basically satisfaction, 0-4: dissatisfied). Psychological state: Hamilton Anxiety Scale (HAMA) was used to investigate patients in the two groups at admission, 30 min before operation and 1 day after operation. Adverse reactions: The incidence rate of adverse reactions (hemorrhage, thrombosis, urinary retention, etc.) was analyzed from the patient's operation to discharge from the hospital. Vital signs: The heart rate, systolic blood pressure, diastolic blood pressure and sleep time were compared between the two groups at 1 d after operation. Hospitalization time: The

Table 2. Comparison of nursing satisfaction [n (%)]

	OG (n = 92)	RG (n = 105)	x^2	P
Satisfactory	60 (65.22)	51 (48.57)	5.524	0.019
Basically satisfaction	29 (31.52)	39 (37.14)	0.686	0.408
Dissatisfaction	3 (3.26)	15 (14.29)	7.179	0.007

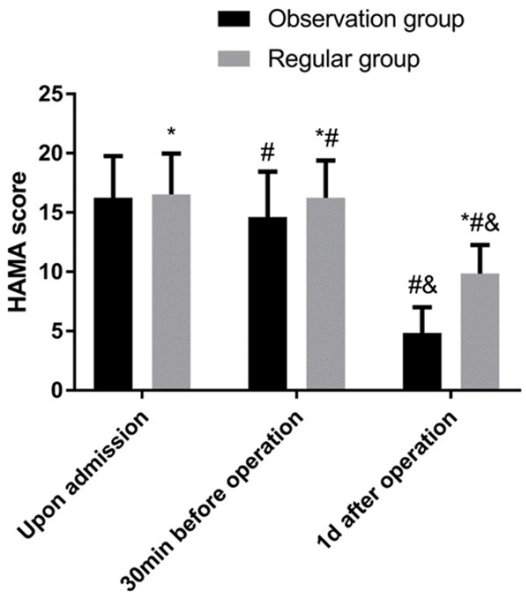

Figure 2. Comparison of psychological state between the two groups. * represents that compared with HAMA score in OG at the same time, P < 0.05; # represents that compared with HAMA score in the same group at admission, P < 0.05; & represents that compared with HAMA score in the same group 30 min before operation, P < 0.05.

time from admission to discharge was analyzed. Prognosis: In the two groups, the prognosis of the patients was followed up for one year to record the probability of readmission rate of patients' prognosis.

Statistical methods

SPSS21.0 was used to analyze and process the data. The mean value calculated from the measurement data was recorded in the form of mean number ± standard deviation. The comparison between groups was conducted by T-test. The comparison before and after treatment was conducted by paired T-test. The comparison at multiple time points was conducted by repetitive measurement and analysis of variance and Bonferroni post hoc testing. The percentage calculated from the enumeration data was recorded in the form of % and the chi-square test was used for comparison between groups. The difference was statistically significant with P < 0.05.

Results

Comparison of baseline data

There was no statistical difference in age, BMI, gender, smoking, drinking habit, family history and operation type between the two groups (P > 0.05) (**Table 1**).

Comparison of nursing satisfaction

By comparing the nursing satisfaction in the two groups, it was found that the score of nursing satisfaction in OG was significantly higher than that in RG (P < 0.001). However, by observing the satisfaction grades, we found that there was no difference in patients with basic satisfaction between the two groups (P > 0.050), while the OG has more satisfied patients than the RG (P < 0.05), and the unsatisfied patients were less than the RG (P < 0.05) (**Figure 1**; **Table 2**).

Comparison of psychological state

There was no difference in HAMA score between the two groups at admission (P > 0.05). The HAMA score in OG was lower than that in RG 30 min before operation (P < 0.05), while the HAMA score in OG was significantly lower than that in RG 1 day after operation (P < 0.001). There was no difference in HAMA score in RG at admission and 30 min before operation (P > 0.05), but it decreased 1 day after operation (P < 0.05). However, the HAMA score 30 min before operation in OG was lower than that at admission, and it decreased at 1 day after operation compared with that 30 min before operation (P < 0.05) (**Figure 2**).

Comparison of adverse reactions

By comparing the adverse reactions in the two groups, it was found that the incidence of adverse reactions was 7.61% in OG, and there was no statistically significant difference between the OG and the RG (11.43%) (P > 0.05, **Table 3**).

Comparison of vital signs

By comparing the vital signs, it was found that there was no difference in heart rate between

Table 3. Comparison of adverse reactions between the two groups [n (%)]

	OG (n = 92)	RG (n = 105)	x^2	P
Hemorrhage	1 (1.09)	2 (1.90)		
Neurological response	0 (0.00)	1 (0.95)		
Hypotension	2 (2.17)	3 (2.86)		
Thrombus	3 (3.26)	4 (3.81)		
Urinary retention	1 (1.09)	2 (1.90)		
Overall incidence	7.61%	11.43%	0.821	0.365

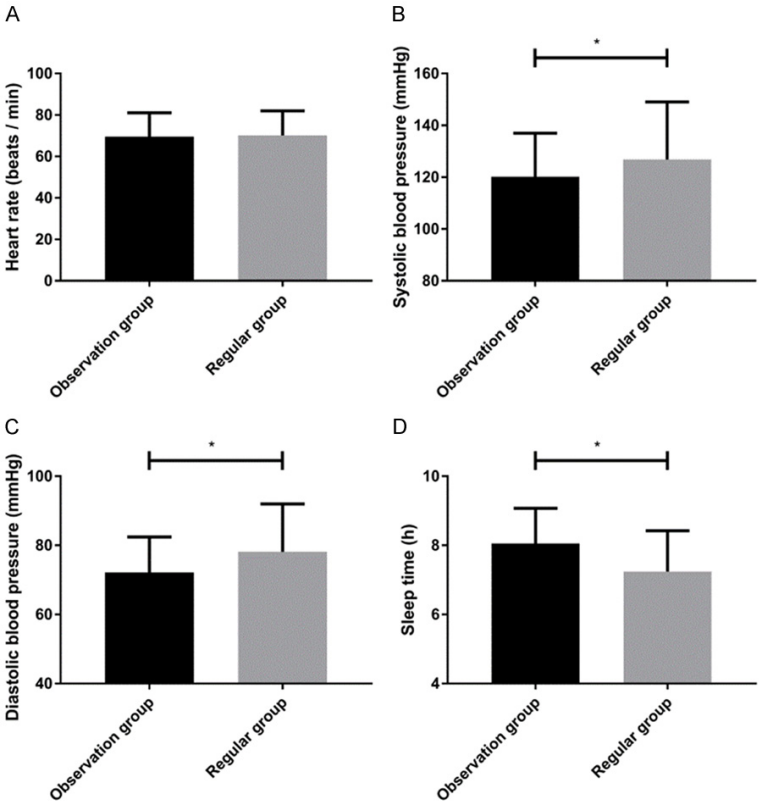

Figure 3. Comparison of vital signs between the two groups. A. Comparison of heart rate between the two groups. B. Comparison of systolic blood pressure between the two groups. C. Comparison of diastolic blood pressure between the two groups. D. Comparison of sleep time between the two groups. Comparison of nursing satisfaction scores between the two groups. * represents a significant difference between the two groups, P < 0.05.

the two groups 1 day after operation (P > 0.05). The systolic blood pressure and diastolic blood pressure in OG were lower than those in RG (P < 0.05), while the sleep time was higher than that in RG (P < 0.05) (**Figure 3**).

Comparison of hospitalization time in the two groups

The hospitalization time was 12.22±2.26 d in OG, which was significantly shorter than that in RG (15.84±1.87 d) (P < 0.001) (**Figure 4**).

Comparison of prognosis

In the follow-up of prognosis, 192 patients were followed up in the two groups, with a follow-up success rate of 97.5%. Eighty-nine patients were successfully followed up in OG and 103 patients were successfully followed up in RG. By comparing the readmission rate of prognosis, it was found that there was no difference in the readmission rate of prognosis between the OG and the RG (P > 0.05) (**Table 4**).

Discussion

At present, the cardiovascular interventional surgery is widely used in clinical practice [15]. If the application value of high-quality nursing in interventional surgery can be confirmed, the rehabilitation and prognosis of patients can be further improved when cardiovascular interventional surgery is implemented in future clinical practice. We have found that there have been many researches on operation-related nursing interventions, and they have achieved remarkable results [16, 17]. This study has preliminarily revealed that the intervention of high-quality nursing is of great significance for cardiovascular interventional surgery by comparing the situation of high-quality nursing and routine nursing in various aspects after cardiovascular interventional surgery.

The results of this experiment showed that among patients undergoing cardiovascular interventional surgery, the satisfaction degree of patients receiving high-quality nursing in OG was significantly higher than that of patients receiving conventional nursing in RG, which indicated that the application of high-quality

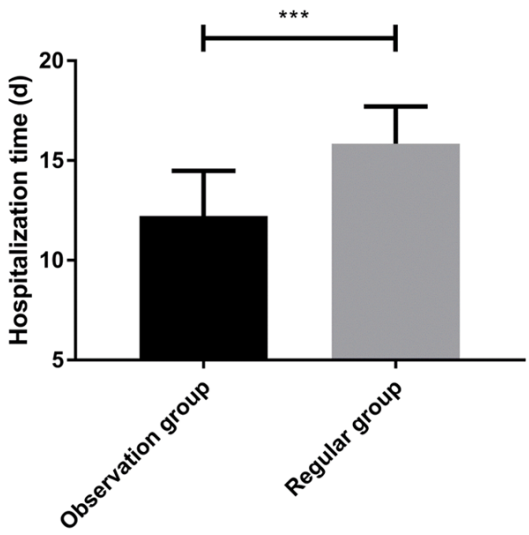

Figure 4. Comparison of hospitalization time in the two groups. *** represents a significant difference between the two groups, $P < 0.001$.

nursing in cardiovascular interventional surgery could improve the quality of nursing services. We also found this point in other studies. More detailed and targeted nursing services are the key to improve nursing satisfaction [18, 19]. In the high-quality nursing, medical staff are required to provide more active and in-depth services during the perioperative period of interventional surgery, which can not only improve the nursing experience of patients, but also the working confidence of medical staff. By observing the previous research on cardiovascular interventional surgery and our experience, we have believed that traditional nursing has the following deficiencies in the process of implementing nursing services [20-24]. 1. Recognition degree: Nursing staff do not know enough about the disease and lack relevant experience in dealing with postoperative emergencies of patients with cardiovascular diseases, which may lead to patients not getting the best care in the rehabilitation process. Therefore, we emphasized the key content of nursing work in high-quality nursing. Facing some unexpected situations, nursing staff can calmly and timely carry out correct intervention treatment, which is of great significance for improving the quality of nursing. 2. Treatment compliance is poor. We found that some patients did not follow the doctor's advice to make reasonable arrangements in the process of postoperative rehabilitation, which had a great negative impact on the patients themselves and the services of medical staff. But nursing staff can improve patients' medical knowledge and treatment compliance by teaching patients and their families about diseases. 3. Doctor-patient relationship: This is an important reason that has affected clinical services for a long time and exists in all departments. This is because patients are extremely resistant to the treatment process due to the threat of disease, fear of death, confusion of unknown treatment and other circumstances, and have no trust in medical personnel. Patients cannot understand the requirements and corresponding arrangements put forward by the medical staff. Patients usually face them with resistance and neglect. Therefore, we focused on the close relationship between doctors and patients when we implemented high-quality nursing. The communication between medical staff and patients can greatly improve the confidence in the success of treatment and the efficiency of treatment. In the process of communication, patients' trust for medical staff is improved and their resistance to treatment is reduced, which is also one of the reasons for improving patients' rehabilitation. Because of the above points, we found that the investigation results of OG were superior to those of RG when we investigated the psychological state, vital signs and hospitalization time of patients between the two groups in the follow-up study. There was no difference in the incidence of adverse reactions and the readmission rate of prognosis between the two groups. We speculated that it might be related to the excellent effect of cardiovascular interventional surgery. At present, many studies have also revealed that the curative effect of cardiovascular interventional surgery is extremely significant. It not only has extremely high safety, but also has a better effect on the complete cure of diseases, and the relapse rate of patients is not high [25, 26].

However, there are still many deficiencies that need to be improved in this study due to the limited experimental conditions. For example, the research object base is small, so the statistical analysis of big data cannot be carried out. At present, there is still little research on nursing guidance for cardiovascular interventional surgery, and we still need to improve

Table 4. Comparison of readmission rate of prognostic between the two groups [n (%)]

	OG (n = 89)	RG (n = 103)	x^2	P
Readmission	16 (17.98)	24 (23.30)	0.820	0.365
No clinical visit	73 (82.02)	79 (76.70)		

some details when carrying out high-quality nursing intervention for patients. Due to short experimental period, it is impossible to judge the long-term prognosis of patients in the two groups. We will conduct a long-term follow-up investigation on the patients in this study and continuously improve our experiments to obtain the best experimental results.

To sum up, high-quality nursing can effectively improve the nursing satisfaction of patients undergoing cardiovascular interventional surgery and shorten their rehabilitation period, so it has great application value in future clinical practice.

Disclosure of conflict of interest

None.

Address correspondence to: Juan Chen, Operating Room, Qinghai Provincial People's Hospital, No. 2, Gonghe Road, Chengdong District, Xining, Qinghai Province, China. Tel: +86-13997275357; E-mail: chenjuan1535920842@163.com

References

[1] Roth GA, Johnson C, Abajobir A, Abd-Allah F, Abera SF, Abyu G, Ahmed M, Aksut B, Alam T, Alam K, Alla F, Alvis-Guzman N, Amrock S, Ansari H, Ärnlöv J, Asayesh H, Atey TM, Avila-Burgos L, Awasthi A, Banerjee A, Barac A, Bärnighausen T, Barregard L, Bedi N, Belay Ketema E, Bennett D, Berhe G, Bhutta Z, Bitew S, Carapetis J, Carrero JJ, Malta DC, Castañeda-Orjuela CA, Castillo-Rivas J, Catalá-López F, Choi JY, Christensen H, Cirillo M, Cooper L Jr, Criqui M, Cundiff D, Damasceno A, Dandona L, Dandona R, Davletov K, Dharmaratne S, Dorairaj P, Dubey M, Ehrenkranz R, El Sayed Zaki M, Faraon EJA, Esteghamati A, Farid T, Farvid M, Feigin V, Ding EL, Fowkes G, Gebrehiwot T, Gillum R, Gold A, Gona P, Gupta R, Habtewold TD, Hafezi-Nejad N, Hailu T, Hailu GB, Hankey G, Hassen HY, Abate KH, Havmoeller R, Hay SI, Horino M, Hotez PJ, Jacobsen K, James S, Javanbakht M, Jeemon P, John D, Jonas J, Kalkonde Y, Karimkhani C, Kasaeian A, Khader Y, Khan A, Khang YH, Khera S, Khoja AT, Khubchandani J, Kim D, Kolte D, Kosen S, Krohn KJ, Kumar GA, Kwan GF, Lal DK, Larsson A, Linn S, Lopez A, Lotufo PA, El Razek HMA, Malekzadeh R, Mazidi M, Meier T, Meles KG, Mensah G, Meretoja A, Mezgebe H, Miller T, Mirrakhimov E, Mohammed S, Moran AE, Musa KI, Narula J, Neal B, Ngalesoni F, Nguyen G, Obermeyer CM, Owolabi M, Patton G, Pedro J, Qato D, Qorbani M, Rahimi K, Rai RK, Rawaf S, Ribeiro A, Safiri S, Salomon JA, Santos I, Santric Milicevic M, Sartorius B, Schutte A, Sepanlou S, Shaikh MA, Shin MJ, Shishehbor M, Shore H, Silva DAS, Sobngwi E, Stranges S, Swaminathan S, Tabarés-Seisdedos R, Tadele Atnafu N, Tesfay F, Thakur JS, Thrift A, Topor-Madry R, Truelsen T, Tyrovolas S, Ukwaja KN, Uthman O, Vasankari T, Vlassov V, Vollset SE, Wakayo T, Watkins D, Weintraub R, Werdecker A, Westerman R, Wiysonge CS, Wolfe C, Workicho A, Xu G, Yano Y, Yip P, Yonemoto N, Younis M, Yu C, Vos T, Naghavi M and Murray C. Global, regional, and national burden of cardiovascular diseases for 10 causes, 1990 to 2015. J Am Coll Cardiol 2017; 70: 1-25.

[2] Liu S, Li Y, Zeng X, Wang H, Yin P, Wang L, Liu Y, Liu J, Qi J, Ran S, Yang S and Zhou M. Burden of cardiovascular diseases in China, 1990-2016: findings from the 2016 global burden of disease study. JAMA Cardiol 2019; 4: 342-352.

[3] Cazzola M, Calzetta L, Rinaldi B, Page C, Rosano G, Rogliani P and Matera MG. Management of chronic obstructive pulmonary disease in patients with cardiovascular diseases. Drugs 2017; 77: 721-732.

[4] Al-Mallah MH, Sakr S and Al-Qunaibet A. Cardiorespiratory fitness and cardiovascular disease prevention: an update. Curr Atheroscler Rep 2018; 20: 1.

[5] Khan SS, Ning H, Wilkins JT, Allen N, Carnethon M, Berry JD, Sweis RN and Lloyd-Jones DM. Association of body mass index with lifetime risk of cardiovascular disease and compression of morbidity. JAMA Cardiol 2018; 3: 280-287.

[6] Zhao Y, Guo S, Xiao N, Wang Y, Li Y and Jiang Y. Operating force information on-line acquisition of a novel slave manipulator for vascular interventional surgery. Biomed Microdevices 2018; 20: 33.

[7] Holst KA, Said SM, Nelson TJ, Cannon BC and Dearani JA. Current interventional and surgical management of congenital heart disease: specific focus on valvular disease and cardiac arrhythmias. Circ Res 2017; 120: 1027-1044.

[8] Lehto J, Gunn J, Björn R, Malmberg M, Airaksinen KEJ, Kytö V, Nieminen T, Hartikainen

JEK, Biancari F and Kiviniemi TO. Adverse events and survival with postpericardiotomy syndrome after surgical aortic valve replacement. J Thorac Cardiovasc Surg 2020; 160: 1446-1456.
[9] Aya HD, Cecconi M, Hamilton M and Rhodes A. Goal-directed therapy in cardiac surgery: a systematic review and meta-analysis. Br J Anaesth 2013; 110: 510-517.
[10] Reece TB and Cleveland JC Jr. Noteworthy literature in cardiac surgery 2015. Semin Cardiothorac Vasc Anesth 2016; 20: 34-39.
[11] Dudzinski DM, Giri J and Rosenfield K. Interventional treatment of pulmonary embolism. Circ Cardiovasc Interv 2017; 10: e004345.
[12] Rosser E. Nursing now: nurses at the heart of the challenge to improve global health. Br J Nurs 2018; 27: 414.
[13] Bilgin S and Gozum S. Effect of nursing care given at home on the quality of life of patients with stomach cancer and their family caregivers' nursing care. Eur J Cancer Care (Engl) 2018; 27: e12567.
[14] Xu W and Du J. Biomarkers and individualized precise treatment of cardiovascular diseases. Zhonghua Xin Xue Guan Bing Za Zhi 2015; 43: 469-470.
[15] Patel MR, Calhoon JH, Dehmer GJ, Grantham JA, Maddox TM, Maron DJ and Smith PK. Correction to: ACC/AATS/AHA/ASE/ASNC/SCAI/SCCT/STS 2017 appropriate use criteria for coronary revascularization in patients with stable ischemic heart disease. J Nucl Cardiol 2018; 25: 2191-2192.
[16] Coolbrandt A, Wildiers H, Laenen A, Aertgeerts B, Dierckx de Casterle B, van Achterberg T and Milisen K. A nursing intervention for reducing symptom burden during chemotherapy. Oncol Nurs Forum 2018; 45: 115-128.
[17] Bjornnes AK, Parry M, Lie I, Fagerland MW, Watt-Watson J, Rustoen T, Stubhaug A and Leegaard M. The impact of an educational pain management booklet intervention on postoperative pain control after cardiac surgery. Eur J Cardiovasc Nurs 2017; 16: 18-27.
[18] Al-Hamdan Z, Manojlovich M and Tanima B. Jordanian nursing work environments, intent to stay, and job satisfaction. J Nurs Scholarsh 2017; 49: 103-110.
[19] McNicholas A, McCall A, Werner A, Wounderly R, Marinchak E and Jones P. Improving patient experience through nursing satisfaction. J Trauma Nurs 2017; 24: 371-375.
[20] Anthony M. Nursing now. Home Healthc Now 2019; 37: 7-8.
[21] Martín-Del-Río B, Solanes-Puchol Á, Martínez-Zaragoza F and Benavides-Gil G. Stress in nurses: the 100 top-cited papers published in nursing journals. J Adv Nurs 2018; 74: 1488-1504.
[22] Yakuwa MS, Neill S and Mello DF. Nursing strategies for child health surveillance. Rev Lat Am Enfermagem 2018; 26: e3007.
[23] Brown Will SE. Perioperative nursing care in obstetrics and gynecology. AORN J 2019; 110: 130-133.
[24] Fueling the passion for nursing. Nursing 2017; 47: 6.
[25] Chandrababu R, Rathinasamy EL, Suresh C and Ramesh J. Effectiveness of reflexology on anxiety of patients undergoing cardiovascular interventional procedures: a systematic review and meta-analysis of randomized controlled trials. J Adv Nurs 2019; 75: 43-53.
[26] Peschillo S, Caporlingua A, Resta MC, Peluso JPP, Burdi N, Sourour N, Diana F, Guidetti G, Clarencon F, Bloemsma GC, Di Maria F, Donatelli M and Resta M. Endovascular treatment of large and giant carotid aneurysms with flow-diverter stents alone or in combination with coils: a multicenter experience and long-term follow-up. Oper Neurosurg (Hagerstown) 2017; 13: 492-502.