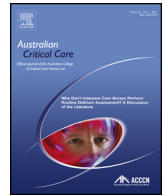




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Review Paper

Cardiac rehabilitation in the acute care setting: Integrative review

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ABSTRACT

Background: Phase one cardiac rehabilitation (CR) is an essential component of care for patients with coronary heart disease. With optimal program delivery, health outcomes can be improved.

Objectives: To conduct an integrative review that explores Phase one CR for patients hospitalised with coronary heart disease.

Design: Integrative literature review (2003–2014)

Data sources: The literature search included Medline, Cumulative Index to Nursing and Allied Health Literature (CINAHL), Experta Medica Database (EMBASE), Psycinfo, Clinical Practice Guidelines Portal, Cochrane Library, Clinical Evidence (BMJ) and Google Scholar.

Review methods: The Joanna Briggs Institute critical appraisal tools relevant to study methodology were utilised. Studies included for review were peer reviewed, published in English. Studies included Phase one CR intervention/s or the provision of education to patients diagnosed with coronary heart disease in the acute care setting prior to hospital discharge.

Results: In the past decade cardiac researchers have predominantly focused on patients and health professionals perceptions, CR interventions, and patient education. Factors that impede delivery of Phase one CR, such as time, workload etc. were also reported.

Conclusions: The implementation of Phase one CR delivery requires optimisation to enable patients with coronary heart disease to achieve positive health outcomes post hospitalisation. Future interventions should address the factors that impede delivery of Phase one CR.

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1. Background

Globally, cardiovascular disease is the leading cause of mortality and morbidity [1]. The largest subset of cardiovascular disease is coronary heart disease (CHD). In Australia, half of the expenditure in cardiovascular disease is spent on in hospital stay [2]. Optimal patient health outcomes depend on timely diagnosis, coronary risk factor stratification and implementation of evidence-based treatment [3]. All patients who have coronary heart disease, heart failure or some other form of cardiovascular disease are eligible for, and should have access to a cardiac rehabilitation (CR) program [4,5].

In Australia, CR consists of three phases. Phase one CR is an inpatient education program focusing on clinical management and support for both the patient and their family [6]. This phase is structured to provide the inpatient with confirmation of their medical diagnosis, counselling regarding managing their modifiable cardiac risk factors, resumption of daily activities, returning to work, medication information and self-management principles, including a chest pain management action plan [6]. It is during this phase that patients' and their families may develop rapport with staff members, form opinions of the organisation and start to consider genuine lifestyle change. This is often a critical juncture for many patients who have a chronic disease and their experience in hospital may impact their future health outcomes. It is paramount that evaluations focus on the optimisation of the delivery of Phase one CR. Phase one CR concludes with follow up and referral to a Phase two CR program [7–9]. Phase two CR is a multidisciplinary, usually outpatient or community based program that focuses on physical and psychosocial wellbeing, lifestyle modification and exercise. Phase

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three CR is an outpatient based community program that focuses on lifetime health maintenance [7]. All phases of CR are important.

It has been reported that patients have different learning needs depending on their stage in the recovery process [10]. Hospitals have an ethical and legal obligation to not only provide Phase one CR but also to ensure that it is documented and that patients receive secondary prevention education [11–14]. Research has shown that the delivery of Phase one CR does impact on patient attendance to Phase two CR [15]. Furthermore, for those who choose not to attend a Phase two program, the inpatient Phase one program may be the only opportunity that they have to access individualised secondary prevention information. The reported health outcomes from Phase two CR include reduced hospital readmissions, decreased mortality and increased quality of life [16–18]. Further, the burden of disease would be significantly reduced by achieving secondary prevention goals [20].

Inpatient cardiac care and length of stay has significantly changed since the first Phase one CR studies were published in the late 1970s. At that time, the average length of stay was 18 and 22 days for cardiology medical and surgical patients respectively [22]. By 1998, the percentage of acute myocardial infarction (AMI) hospitalisations with a length of stay greater than three days was nearly 75% [23]. This incidence of inpatient stays greater than three days had fallen to approximately 50% by 2008 [23]. In order to accommodate this change in care and with a view to obtaining highly applicable and translatable outcomes, only research published in the last decade has been reviewed.

The aim of this review is to conduct an integrative review on the contemporary Phase one CR literature and to identify areas that require further research.

2. Methods

An integrative review to scope the literature was chosen to explore this topic because there is little published research reported on Phase one CR. Included publications are in the form of qualitative, quantitative, mixed method and review articles.

Literature published in refereed journals, in English and available in full text between January 2003 and December 2014 were examined.

Searches were made in the electronic databases Ovid MEDLINE(R), Cumulative Index to Nursing and Allied Health Literature (CINAHL), Experta Medica Database (EMBASE), PsycINFO, Clinical Practice Guidelines Portal, Cochrane library, Clinical evidence (BMJ) and Google scholar. Databases were searched using keywords and Medical Subject Headings (MeSH) keywords as appropriate. Keywords included 'coronary heart disease', 'coronary artery bypass', 'myocardial infarction', 'cardiac surgery', 'cardiac rehabilitation', 'secondary prevention', 'chronic disease management', 'patient education', 'discharge education'. Reference lists of selected studies were also manually searched for further literature that fitted within the timeframe. Included studies specifically researched Phase one CR intervention/s or the provision of education to patients diagnosed with coronary heart disease in the acute care setting prior to discharge from hospital. Included participants were patients diagnosed with coronary heart disease or post cardiac procedure who were eighteen years of age or older at the time of the study and/or health professionals looking after patients diagnosed with coronary heart disease in the acute care setting. Publications were evaluated using the Joanna Briggs Institute (JBI) critical appraisal checklist relevant to each study method. Qualitative research was evaluated utilising JBI QARI critical appraisal checklist for interpretative and critical research. Quantitative papers were analysed using the JBI checklist for experimental studies when relevant, or the JBI critical appraisal checklist for comparable cohort/case control. Descriptive

studies were analysed utilising the JBI critical appraisal checklist for descriptive/case series [24]. These JBI checklists contain criteria for detecting selection bias, performance bias, detection bias and attribution bias [25].

3. Results

3.1. Selected studies

As shown in Fig. 1, the final 20 review studies comprised seventeen quantitative and three qualitative studies. The study designs included observational ($n = 14$), quasi-experimental ($n = 1$), experimental (non-randomised) ($n = 2$), descriptive qualitative ($n = 1$), descriptive exploratory qualitative ($n = 1$) and phenomenological-hermeneutic ($n = 1$). A summary of these studies is provided in Table 1.

3.2. Key themes

We had examined studies which had explored Phase one CR. Three key themes emerge from the 20 studies reviewed. These common themes included Education, Interventions and Factors that facilitate or impede the delivery of Phase one CR. These themes have been used as headings to group the literature

3.2.1. Education: delivery, understanding and recall of information

Reports in eight studies contained results and descriptions of delivery, understanding and recall of information [10,26–32]. Two studies reported that a framework was utilised for the delivery of education. Eshah [26] utilised the health belief model (HBM) to implement an education program. Smith and Liles [10] identified Mirka's conceptual model but not implementation or outcomes with this model. Investigators had also reported that patients did not receive adequate education prior to discharge [27,28], or a clear understanding of their disease process [29]. Further, patients were unable to recall verbal information provided prior to discharge [27,28,30]. Researchers also reported a discrepancy between the education that patients wanted to receive and the perception of information that was given [31]. Further, that the amount of information that patients receive is directly related to patients' satisfaction with health care [32].

Many studies identified that the depth of staff knowledge in the area Phase one CR delivery was important [26–30,33–38]. Kilonzo and O'Connell [33] reported that cardiac nurses differed not only in their perception of patients learning needs but also in their perceptions of their own value as educators. It was noted that patients perceived nurse delivered education as being of a higher value than the nurses did [33].

3.2.2. Interventions

Four of the included review studies reported interventions that aimed to facilitate Phase one CR delivery [15,26,36,39]. Interventions included raising staff awareness [36], hosting of an educational session [26], implementation of a quality improvement program [15] and introducing a Phase one CR exercise based protocol [39]. Each intervention was carried out at a single site and the variation in sample size and interventions limits generalisability of the results.

The intervention of raising staff awareness of Phase one CR guidelines did not appreciably alter concordance rates in the local setting [36]. One author reported utilising a framework based on the Health Belief Model for a 1 h educational session to increase patients 'health responsibility' [26]. The intervention utilising this model enabled the Phase one CR educator to provide patients with

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