Life insurance and mortgage application in adults
with congenital heart disease


Abstract

Objective: To compare the outcome of life insurance and mortgage applications of adults with congenital heart disease (CHD) with controls and at different severities of CHD. Methods: Two hundred and ninety-nine adult CHD patients underwent a questionnaire-based interview by a trained nurse. They were asked to give an identical questionnaire to a friend to act as a control. One hundred and seventy-seven controls replied. CHD patients were classified into three categories based on severity. Comparisons were made between matched controls and between different severities of CHD. Results: Similar proportions of the CHD group (59%) had applied for life insurance as matched controls (56%). Compared to controls, significantly more of the adults with CHD who had applied for life insurance have been refused (34 vs 4%, \(P < 0.0001\)) or asked to pay extra (37 vs 6%, \(P = 0.0002\)). Mortgage application rate was also similar in both groups with more of the CHD patients refused than matched controls (20 vs 3%, \(P = 0.004\)). These differences in both life insurance and mortgage remain significant when the cases and controls are matched by employment status and NYHA functional class. There was no significant difference in life insurance and mortgage application outcome between the groups of mild, significant and complex CHD. Conclusions: Adults with CHD are significantly more likely to have difficulty obtaining life insurance or a mortgage than controls. Refusal rates appear to be independent of the severity of CHD. This suggests that the label of CHD may have a negative impact despite the lesion being minor and that the outcome of an individual application is difficult to predict based on the severity of the CHD. The increasing numbers of adults with CHD suggest that this problem is likely to increase and needs to be addressed as it can have a major impact on the patient’s quality of life.

Keywords: Congenital heart disease; Life insurance; Mortgage

1. Introduction

Improvements in the treatment of children with congenital heart disease (CHD) have led to the majority of these patients reaching adulthood [1,2]. The quality of life and general health status of adults with CHD has been addressed in some studies but there is little data on important issues such as their life insurance status or their ability to obtain a mortgage [3–6]. Questionnaire studies of provider companies and consensus statements suggest that the majority of adults with CHD would be denied insurance or offered higher rates [7–10]. We investigated the life insurance and mortgage status of a large group of adults with CHD and were particularly interested in the effect of the congenital heart lesion itself on mortgage applications and the ability to obtain life insurance.

2. Methods

Patients with CHD were selected from the departmental database and sent a letter asking them if they would like to participate in the study. Patients were also recruited from the twice-weekly adult CHD clinic. In total 320 patients with CHD were approached and 299 agreed to participate. Patients with learning difficulties were excluded. The structured interview was carried out by one of the research
The CHD population was divided into mild, significant and complex attempting to take into account the original diagnosis, previous surgery and need for future intervention. Mild disease was classified as those needing observation only such as mild aortic or mitral regurgitation, mild pulmonary stenosis and repaired atrial or ventricular septal defect. Significant included those in whom a correction has been attempted but are likely to require further intervention or to have further problems related to their CHD. Such patients included those with tetralogy of Fallot, those who had undergone a Ross procedure, patients with repaired coarctation and repaired complete atrioventricular septal defect. Complex lesions were those where corrective surgery could not be carried out including Eisenmengers, shunt-dependant pulmonary circulations, Fontan circulations and those with the right ventricle supplying the systemic circulation.

To obtain a control group of similar social background and expectations to the CHD population, each adult with CHD was asked to give an identical questionnaire to a friend without CHD. One hundred and seventy-seven controls posted back their questionnaire. We did not specifically control for smoking or illness not related to CHD. One hundred and seventy-seven controls were asked to give an identical questionnaire to a friend without CHD. One hundred and seventy-seven controls posted back their questionnaire. We did not specifically control for smoking or illness not related to CHD.

Table 1
Comparison of mortgage and life insurance application outcome in adults with CHD and controls

<table>
<thead>
<tr>
<th></th>
<th>All case and control pairs</th>
<th>Pairs also matched by employment status and NYHA class</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>CHD (%) Control (%)</td>
<td>CHD (%) Control (%)</td>
</tr>
<tr>
<td>Life insurance</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pay extra</td>
<td>23/63 (37) 4/63 (6)</td>
<td>13/34 (38) 4/34 (12)</td>
</tr>
<tr>
<td>Refused</td>
<td>30/81 (34) 5/81 (4)</td>
<td>11/38 (29) 1/38 (3)</td>
</tr>
<tr>
<td>Mortgage</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Refused</td>
<td>12/60 (20) 2/60 (3)</td>
<td>6/30 (20) 0/30 (0)</td>
</tr>
</tbody>
</table>

The numbers shown are for matched pairs in which both the case and control applied and both gave an answer to the question (see Section 2).

classified as mild, significant or complex (Table 2). Twenty-four of the 57 patients (42%) shown as being refused life insurance in Table 2 subsequently had an application accepted. Ten of these had mild disease (four accepted at increased rate), 11 had significant disease (five accepted at increased rate) and three had complex disease (all accepted at increased rate). At least 30% of adults with complex CHD who had applied for life insurance were covered at standard rates.

The same pattern was observed when comparing mortgage application with 165 pairs both answering the question about mortgage application with similar proportions having applied [47% (78/165) CHD and 53% (87/165) controls, $P = 0.09$]. Of the 60 matched pairs who had both applied and answered the question about mortgage refusal significantly more adults with CHD were refused than their controls (Table 1). The mortgage refusal rate did not differ between disease severities (Table 2).

3. Results

The mean age of the CHD population was 32.4 years compared to the matched control’s mean age of 32.9. Of the cases with matched controls 81/177 (46%) were males compared to 69/177 (39%) controls. One hundred and seventy-two pairs had both answered the question about life insurance application with similar proportions having applied [59% (101/172) CHD vs 56% (96/172) controls, $P = 0.5$]. In 81 matched pairs both had applied for life insurance and answered the question about whether or not they had been refused with 61 also answering the question about having to pay extra. Of these significantly more of the CHD group had been refused or asked to pay extra for life insurance than matched controls (Table 1). This difference between cases and their self-selected matched peers remains highly significant when only including pairs matched for employment status and NYHA class (Table 1).

Refusal rates or being asked to pay extra for life insurance was the same for each group of CHD when

4. Discussion

This study shows that adults with CHD are significantly more likely than controls to be refused life insurance at standard rates. In general this might not be regarded as a surprising finding but it must be remembered that this population of adults is a truly miscellaneous group with an extremely variable long-term prognosis. The classification of congenital heart defects is cumbersome due to the large number of defects seen and for the purposes of this study we used a functional classification of mild, significant and complex. This type of classification has been used before and is particularly useful in considering the workload of the adult CHD clinic, which is biased toward the significant and complex end of the spectrum, as many of the mild lesions will be discharged in childhood [1]. We were surprised to find that the severity of heart disease by this classification appeared to have no significant effect on either life insurance or mortgage application outcomes.
It would appear, therefore, that patients with mild defects are inappropriately disadvantaged by their history of CHD. Our study did not investigate the reasons for this but there are a number of possibilities. The patients may not have an adequate understanding of the lesion and give it undue prominence in the application form. It is of interest that a relatively large number was accepted on a subsequent application. One possibility is that a degree of learning had taken place by the patient and the emphasis put on the disease was changed between applications.

Another is that the subsequent application was to a different company. Others have shown that, although in general companies categorise each diagnosis similarly, there are some significant inconsistencies between companies which could be of benefit to the adult with CHD who ‘shops around’ [7, 8]. Some insurance companies may be trying to avoid such patients and any mention of CHD, no matter how trivial, results in a potentially prohibitive loading of the policy. The fact that the cardioligist was not asked by the company to provide a summary or assessment may suggest this.

The finding that patients at the more severe end of the spectrum do not differ significantly from the mild lesions is puzzling. It is possible that the patients may not be aware of the precise diagnosis and state only that they have a congenital heart lesion and are under continuing follow-up but feel completely well [11]. It is surprising from the cardiologist’s viewpoint that decisions on life insurance often appear to be made without contacting the supervising cardiologist and that premiums may be based on a diagnosis rather than details of the haemodynamic status of an individual patient. A patient with tetralogy of Fallot and small pulmonary arteries who has required a transannular patch would have the same ‘headline’ diagnosis as a patient with excellent pulmonary arteries and a virtually preserved pulmonary valve.

The improving survival of patients with CHD to adulthood is creating a new set of problems, many of which although not directly clinical have a major impact on the patients and their families’ life. The ability to obtain life insurance is one such problem and the outcome of an individual application depends on the interplay of several factors. The long-term outcome data available to the providers will by definition come from a previous era but as this is the only data available it is likely to have a major impact on the quotation for life insurance. Depending on patients to provide the diagnosis is another potential problem in life insurance and mortgage application as the patients’ knowledge of their diagnosis may be poor and is certainly likely to vary widely between patients [11]. Attempts to assign patients neat prognostic groups is difficult as patients with the same condition can be completely different in terms of need for further intervention and long-term outcome [12, 13].

The provision of life insurance and mortgage for this miscellaneous population is difficult but the inconsistencies in the current situation need to be addressed by cardioligists, cardiac surgeons, life insurance companies and patient groups.

Acknowledgements

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References


Table 2
Comparison of life insurance and mortgage application outcome amongst patients with different severities of CHD

<table>
<thead>
<tr>
<th>Group</th>
<th>Life insurance</th>
<th>Mortage</th>
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<tbody>
<tr>
<td></td>
<td>Applied N (%)</td>
<td>Pay extra N (%)</td>
</tr>
<tr>
<td>Mild (N = 109)</td>
<td>52 (48)</td>
<td>8 (15)</td>
</tr>
<tr>
<td>Significant (N = 144)</td>
<td>79 (55)</td>
<td>20 (25)</td>
</tr>
<tr>
<td>Complex (N = 46)</td>
<td>23 (50)</td>
<td>2 (9)</td>
</tr>
</tbody>
</table>

χ² P = 0.52 0.10 0.80 0.55 0.62


Appendix A. Conference discussion

**Dr T. Ebels (Groningen, The Netherlands):** Do you think that we should advise the insurance companies to use the risk stratification methodology that’s now going around? I’m particularly referring to the Aristotle score that might give some insight into the complexity and results.

**Dr Crossland:** The difficulty with that is the insurance companies are trying to make a profit, they are not trying to provide a service to the patients. What we are trying to do now is to discharge some of our patients who are cured or almost cured to help remove their label (of congenital heart disease follow-up). So patients with closed ASD, closed VSD, or balloon dilatation of the pulmonary valve, who are clearly not going to get any worse and can be followed up by the general practitioner, are discharged from clinic to try and remove their label.

I think that risk assessment for life insurance can be very difficult for these patients.

**Dr Ebels:** So maybe it’s a task for the government to take care of it?

**Dr Crossland:** Yes, I think that it’s reasonable that patients with severe disease don’t get life insurance. We have written to insurance companies. For example recently a patient with Fallot’s tetralogy could not get life insurance. The company has written back to us and quoted all the (long term) literature on Fallot’s, which clearly shows poor outcome because the long-term data for Fallot’s is from a different era.

**Dr W. Mrowczynski (Poznan, Poland):** Were there, in your study group, patients after cardiac transplantation? If so, had this fact an influence on insurance refusal or on increased insurance costs?

**Dr Crossland:** Many of our patients with severe disease are now being moved toward transplantation. The patients who have been transplanted were excluded from this study.

**Dr D. Di Carlo (Rome, Italy):** Just to clarify. Were all these patients at the end of the surgical history? That means they had concluded their surgical history, or they required further operation? So that could make a difference for the life insurance, I suppose.

**Dr Crossland:** Some of these patients, who are being followed up in our adult congenital cardiac clinic, are now being discharged. However, many of the patients (in this study) are from an era when patients were kept indefinitely because of uncertain outcome. So closed VSDs, for example, are now being discharged. I agree with you, however, that a number of patients who have been discharged, who are cured, have been excluded.