PRO Consulting
a division of invivodata, inc.

AstraZeneca

northumbria UNIVERSITY

LIVING WITH CHEST PAIN:

A world-wide-web study of patients with cardiac disease and continuing chest pain.

Brian Tiplady[1,2], Katarina Halling[2], Elisabeth Bolling-Sternevald[3]

[1]Northumbria University, Newcastle upon Tyne, UK; [2]PRO Consulting, a division of invivodata inc., Pittsburgh, PA, USA; [3]AstraZeneca, Mölndal, Sweden

Chest Pain

Chest pain is a key symptom in heart disease. Acute chest pain may announce the onset of a heart attack, which could be fatal. Thus even when the pain is not particularly severe, it can cause alarm and anxiety.

Non-cardiac Causes of Chest Pain

Cardiac problems are not the only source of chest pain. Gastrointestinal and musculoskeletal problems and anxiety states are the other main causes of chest pain. These types of pain can often be quite distinct from cardiac pain, but this is not always the case. In over half of emergency admissions for chest pain no cardiac abnormality is found. Thus in practise patients are frequently unable to distinguish cardiac from non-cardiac pain, and healthcare professionals generally rely on objective tests not on symptom profiles to establish cause.

Unexplained non-cardiac chest-pain is a substantial clinical problem. Patients can be hard to reassure that nothing is wrong with the heart when no alternative explanation is available. Follow-up studies have shown that these patients have a rather poor prognosis, with a high level of repeat referrals and limitation to activity [1].

Chest Pain and Uncertainty

Cardiac and non-cardiac sources of chest pain can co-exist. A patient with heart disease may also have a gastrointestinal or other disorder that causes chest pain. Since both cardiac and non-cardiac chest pain are common, the combination is also likely to occur in a substantial number of patients.

Having both cardiac and non-cardiac chest pain presents increased problems for patients. In particular they may feel increased uncertainty and anxiety, may feel less in control of the situation, may be more likely to adopt maladaptive coping strategies such as avoidance of exercise, and may be less able to distinguish situations where medical help is required.

We carried out a web survey to examine the impact of continuing chest pain in patients with cardiac disease. Our hypothesis was that the continuing chest pain, and in particular uncertainty about its cause, would be a potent source of concern and anxiety in these patients.

The Study

We recruited patients from a UK heart patient support website, the British Cardiac Patients Association. They were invited to complete an online questionnaire if they were being treated for coronary heart disease and continued to experience chest pain. The study protocol was reviewed and approved by the Northumbria University Division of Psychology Ethics Committee.

Questionnaire

The web questionnaire began with a page explaining the nature and purpose of the study. Information was then collected about the following topics:

- Age, gender diagnosis and duration of illness
- Medical procedures and interventions
- Medication taken
- Frequency and severity of chest pain
- Last episode of chest pain: time, duration, whether help sought
- Last episode of chest pain: description of pain
- Last episode of chest pain: associated symptoms and events
- Symptoms relevant to GERD
- Attribution of chest pain
- Worry and interference with activities.

Patient Characteristics

Ninety-two patients, 55 males and 37 females completed valid surveys. Ages are shown in Figure 1. Thirty-one patients reported a diagnosis of myocardial infarction, 34 of angina, 3 reported coronary heart disease without being more specific, and 9 reported valvular heart disease. The remaining 15 reported other cardiac diagnoses, or multiple cardiac problems. Thirty-five patients met criteria for probable GI pain (18 male; 17 female). Eleven of these were taking antacids or acid suppressants.

Chest Pain

The median category for frequency of chest pain in the sample was 5 – 10 episodes per month. The intensity of pain during the most recent episode covered the entire scale range, with a median of 4 on an 11-point Numerical Rating Scale (median 5 for probable GI patients). About half of the patients sought help or advice for their most recent episode. A similar proportion were unsure about the cause of their pain.

Worry and Limitations to Activity

The responses of patients to questions about worry and limitations they experienced in their everyday activities are summarised in the Table below:

How strongly would you agree with the following statements?	All Patients (N=92)	Probable GI (N=35)
Chest pain is a frequent cause of worry to me	84 (91%)	32 (91%)
I am able to do all the things I used to do before I had m y heart condition	32 (35%)	8 (23%)
I often worry about chest pain even at times when I do not have pain	49 (53%)	24 (69%)
I worry because I do not know whether my chest pain is due to my heart condition or not	55 (60%)	23 (66%)
I have cut down on exercise because of my chest pain	60 (65%)	24 (69%)
I worry that I might have a heart attack and not realise it because it is similar to my usual chest pain	59 (64%)	31 (89%)

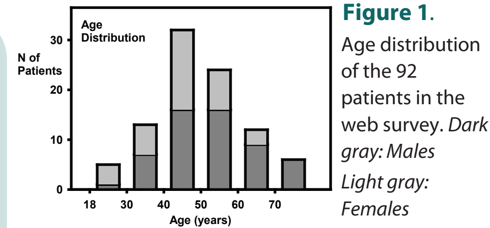

Figure 1. Age distribution of the 92 patients in the web survey. *Dark gray: Males* *Light gray: Females*

Discussion

The sample we recruited experienced quite a lot of pain, which had considerable impact on thir lives and ability to perform their usual activities.

It is clear that there was considerable concern and uncertainty in our patients. Chest pain was a frequent cause of worry for most of the patients.

A central theme of this work was the role of uncertainty in contributing to anxiety and to the impact of chest pain. The key questions here are those relating to patients not knowing whether chest pain is cardiac or not, worry that pain may indicate a heart attack, and the possibility of not recognising a heart attack because it is similar to usual pain. All these questions were responded to positively by over half of the patients.

The group with a probable GI cause for chest pain had several noteworthy features. These patients showed similar or higher scores on measures of pain and of the impact of pain on their lives. Only a third of these patients were taking antacids or acid suppressant medication, a similar proportion to that in the whole group. Other recent work suggests that possible GI causes of chest pain are important and may be under-investigated [2].

It would be expected that treatment with acid-suppression would be effective in many patients with noncardiac pain [3]. Response to treatment with a high dose of a PPI is now used as a diagnostic test in patients with NCCP, and this is now often used as the initial screen for acid-related problems [4].

Conclusions

1) **Our results suggest that there is a substantial group of patients who have both cardiac and non-cardiac pain, who suffer not only more pain, but more uncertainty and anxiety as a result, many of whom could benefit from acid-suppressant treatment.**
2) **Surveys conducted on the world-wide-web are a useful source of information, complementing that obtained from clinicians and face-to-face patient interviews.**

References

1. Leise, M. D. et al. (2010) Mayo Clinic Proceedings, 85: 323
2. Kushnir, V. M. et al. (2010) Am J Gastroenterol, 105: 1032
3. Achem, S. R. et al. (1997) Digestive Diseases and Sciences, 42: 2138
4. Pandak, W. M. et al. (2002) Journal of Clinical Gastroenterology, 35: 307

Contact Details:

btiplady@patientreported.com

Website: www.patientreported.com - or - www.invivodata.com