LETTERS TO THE EDITOR

Scope

Heart welcomes letters commenting on papers published in the journal in the previous six months. Topics not related to papers published earlier in the journal may be introduced as a letter: letters reporting original data may be sent for peer review.

Presentation

Letters should be:

- not more than 600 words and six references in length
- typed in double spacing (fax copies and paper copy only)
- signed by all authors

They may contain short tables or a small figues. **Please send a copy of your letter on disk.** Full instructions to authors appear in the January 1998 issue of *Heart* (page 106).

Apoptosis in cardiovascular disease

SIR,—We would like to endorse much of the editorial on apoptosis in cardiovascular disease,[1] but feel it appropriate to add some further points. The original description of apoptosis was a morphological description, and morphology of cells remains the gold standard for detection of apoptosis. The morphological changes observed in apoptosis are a continuous process from retraction of cells as the first indicator to phagocytosis of the apoptotic bodies. In contrast, the TUNEL technique detects DNA strand breaks, which may occur in non-apoptotic states and should be correlated with morphological evidence of apoptosis. It is not yet certain how much of the apoptotic process is labelled by TUNEL, or even whether apoptotic bodies ingested by phagocytes remain TUNEL positive. Therefore, although it is possible to determine the percentage of cells that are undergoing apoptosis in a defined tissue, it is difficult to establish a rate of apoptosis based on TUNEL.

We disagree that the presence of interleukin converting enzyme (ICE) in a cell confirms that apoptosis is occurring. At present, there is no unique immunoreactive or biochemical marker of apoptosis. Demonstration that the apoptosis machinery is present in cells is not evidence that the cell is undergoing apoptosis. In fact, the machinery (the CASPase proteases) is present in (almost) all cells as inactive zymogens. Thus, whether a cell is ICE or CPP32 positive by immunocytochemistry does not indicate that it is undergoing apoptosis or, if the cell is undergoing apoptosis, that these proteases are responsible. For example, ICE cleavage is a necessary event in the activation of this enzyme in the processing of interleukin (IL) 1β. Clearly not all cells that can make IL-1β undergo apoptosis when they synthesise this product. There are substrates that are cleaved in apoptosis (such as poly ADP ribose polymerase (PARP)), but the presence of PARP itself does not indicate apoptosis, although the presence of a cleaved form of PARP may help substantiate the observation that death occurs by apoptosis.

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1 Davies MJ. Apoptosis in cardiovascular disease. *Heart* 1997;77:498–501.

Familial and primary cardiac amyloidosis: echocardiographically similar diseases with distinctly different clinical outcomes

SIR,—In a recent issue, Dubrey *et al* reported interesting data concerning echocardiographic and electrocardiographic features in relation to the clinical outcome in two types of systemic amyloidosis: primary (AL) and familial.[1] They pointed out that despite indistinguishable echocardiographic findings, including comparable ventricular wall thickening, patients with familial amyloid polyneuropathy (FAP) had a lower incidence of heart failure and low voltage on ECG, as well as longer one year survival, compared with patients with AL amyloidosis. Based on these results, Dubrey *et al* suggested differences in biochemical characteristics of the two types of amyloid fibril or myocyte response to myocardial amyloid deposition. Another point of interest was that echocardiographic abnormalities might be related to the type of mutant transthyretin genes. They noted fewer significant abnormalities in patients with FAP and the valine-30-methionine mutation compared with patients with other mutations.

On the basis of our data[2–8] and extensive experience over 20 years, we agree with Dubrey *et al*'s data on ECG voltage–mass relation and mortality from cardiac causes in patients with FAP or AL amyloidosis. However, additional comments on their echocardiographic findings, especially in patients with FAP, are necessary. Dubrey *et al* included only patients with ventricular wall thickening of > 1.3 cm. This may result in nearly identical echocardiographic data in the two types of amyloid disease. However, 70% of their original patients with FAP had normal or only minor abnormalities. In contrast to other forms of amyloid heart disease, such as primary amyloidosis, amyloid deposition in FAP is generally noticeable in the subendocardium and valves, and less so in the myocardium.[2 9] In addition, as we have previously reported,[3] the incidence and magnitude of the echocardiographic abnormalities in FAP are generally mild to moderate compared with those in primary amyloidosis, and progressive development of these abnormalities occurs with progression of disease stage, duration of illness, and aging in patients with FAP. We also found amyloid deposition in the heart using endomyocardial biopsy, even in patients with FAP and no clinical or echocardiographic evidence of cardiac involvement, in whom left ventricular diastolic function[5–7] and myocardial adrenergic innervation[8] were severely impaired, and diffuse positive myocardial uptake of technetium-99m-pyrophosphate was usually observed.[4] Thus, it is of note that the echocardiographic data and features presented by Dubrey *et al* are not always representative of patients with FAP, and that their data are derived only from patients with FAP and advanced cardiac amyloid infiltration.

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2 Ikeda S-I, Hanyu N, Hongo M, *et al*. Hereditary generalized amyloidosis with polyneuropathy: clinicopathological study of 65 Japanese patients. *Brain* 1987;**110**:315–37.
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9 Hofer PÅ, Andersson R. Postmortem findings in primary familial amyloidosis with polyneuropathy: a study based on six cases from Northern Sweden. *Acta Pathol Microbiol Scand* 1975;**83**:309–22.

Helicobacter pylori and coronary artery disease

SIR,—Two recent letters to the editor[1 2] have argued against an association between *Helicobacter pylori* infection and coronary artery disease via the development of hyperhomocysteinaemia, which was hypothesised by Sung and Sanderson.[3] However, both groups of authors relied on indirect seroepidemiological evidence for *H pylori* infection.

Recently, Blasi *et al* evaluated the presence of *H pylori* in atherosclerotic plaques of abdominal aortic aneurysms from patients who had had abdominal aortic aneurysm surgery.[4] They found no evidence for the presence of *H pylori* in plaque specimens, even though 21 of their 23 patients were seropositive for *H pylori*. Thus, their elegant study ruled out the possibility of a direct involvement of *H pylori* infection in atherosclerosis, no matter how intriguing the hypothesis by Sung and Sanderson might initially seem.[5]

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1 Whincup PH, Mendall MA, Perry IJ, *et al*. Hyperhomocysteinaemia, Helicobacter pylori, and coronary heart disease [letter]. *Heart* 1997;**78**:524.
2 Saxena V, Markus H, Swaminathan S, *et al*. Hyperhomocysteinaemia, Helicobacter pylori,

and coronary heart disease [letter]. *Heart* 1997;**78**:524.
3 Sung JJY, Sanderson JE. Hyperhomocysteinaemia, Helicobacter pylori and coronary heart disease. *Heart* 1996;**76**:305–7.
4 Blasi F, Ranzi ML, Erba M, *et al*. No evidence for the presence of Helicobacter pylori in atherosclerotic plaques in abdominal aortic aneurysm specimens. *Atherosclerosis* 1996;**126**:339–40.
5 Cheng TO. Another cause of hyperhomocysteinemia. *Hosp Pract* 1997;**32**(8):44.

Fool proof fax facilities: a valuable tool in thrombolysis decision making

SIR,—The results from the study by Srikanthan *et al* and its accompanying editorial regarding the use of fax machines in cardiology stimulated us to relate our own experience.[1 2] In August 1987 we implemented a fax network to facilitate communication with residents out of office hours. At the same time we initiated a home thrombolysis programme using a telephone based ECG system that enabled ambulance personnel to transmit an ECG from the home of a patient directly to the hospital. This ECG is interpreted by the resident on duty who decides on thrombolysis treatment. Initially, we felt it necessary for these ECGs to be reviewed by the cardiologist on duty, and faxing them from the hospital to the cardiologists's home seemed the appropriate solution. At that time fax transmission used the same telephone line as oral communication. This was very unwieldy and for many minutes oral communication was blocked by fruitless attempts to fax the ECG. We addressed this problem by installing a second telephone line in the homes of all supervising cardiologists, and running a course "how to manage a fax machine" for nurses and residents. We realised then it was necessary to install a foolproof fax facility.

In the following years fax machines became more user friendly and found their way in to all levels of the hospital organisation. Currently, residents and nurses handle fax machines with ease and confidence. Fax machines have proved especially valuable for the less experienced residents in their communication with the supervisor on call. While the fax machine is transmitting ECGs, simultaneous and swift review of these with the resident is possible. Annually, many hundreds of faxes are sent, contributing to the accuracy of the diagnosis and improvement of patient management, particularly regarding thrombolytic treatment.

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1 Srikanthan VS, Pell ACH, Prasad N, *et al*. Use of fax facility improves decision making regarding thrombolysis in acute myocardial infarction. *Heart* 1997;**78**:198–200.
2 Chamberlain D. Fax machines for thrombolysis? [editorial] *Heart* 1997;**78**:108.

NOTICES

An international meeting on **Proteinases in Vascular Biology** will be held in Leven, Belgium, 8–10 May 1998. The meeting is being organised by the European Vascular Biology Association (EVBA) under the auspices of the Flanders Interuniversity Insitute for Biotechnology. For further details please contact Dr Peter Carmeliet, Chairman EBVA Meeting, Campus Gasthuisberg O&N, Herestraat 49, 3000 Leuven, Belgium (tel: +32 16 34 6142; fax: +32 16 34 5990; email:peter.carmeliet@med.kuleuven.ac.be).

The **8th International Congress on Holter and Noninvasive Electrocardiology** will be held in Ulm, Germany, 22 and 23 May 1998, under the auspices of the International Society for Holter and Noninvasive Electrocardiology (ISHNE). Deadline for abstracts is 1 February 1998. For more information please contact Dr Hans H Osterhues, Department of Internal Medicine II—Cardiology, University of Ulm, Robert-Koch Str. 8, D-89081 Ulm, Germany (tel: +49 731 502 4441; fax: +49 731 502 4475; email: hans.osterhues@medizin.uni-ulm.de).