Extensive subcutaneous bleeding after cardio-pulmonary resuscitation and thrombolytic therapy

S. S. WONG,* J. H. LAZARUS* & C. F. M. WESTON[†]

* Department of Medicine, Llandough Hospital, Penarth, S. Glamorgan, and

[†] Department of Cardiology, University Hospital of Wales, Heath Park, Cardiff

SUMMARY

A patient with acute myocardial infarction, complicated by pre-hospital cardiac arrest, was treated with anistreplase, heparin and aspirin following resuscitation. She developed a large lower lip haematoma and extensive bruising over the chest wall ten hours after thrombolytic therapy. A blood transfusion was required.

CASE REPORT

A 59-year-old woman experienced chest pain and was found collapsed in the bathroom. The general practitioner attended and discovered the patient lying on her back, cyanosed and apnoeic, with no palpable pulse. There were no signs of injury or bleeding. Basic life support was started and an extended-trained (paramedic) ambulanceman arrived 15 min later. The patient was in ventricular fibrillation and received a 200-joule shock resulting in an idioventricular rhythm with no output. Uncomplicated endotracheal intubation was therefore performed using a size-8 tube which was tied-in with ribbon gauze across the lower lip. A palpable pulse was restored after the administration of intravenous adrenaline. On the way to hospital she regained consciousness and removed the endotracheal tube forcibly.

The electrocardiogram on admission (3 h after the onset of symptoms) showed sinus rhythm with significant ST elevation across the infero-lateral leads. As part of a randomized trial of thrombolytic therapy she was given 30 units of anistreplase intravenously over 5 min, 162.5 mg aspirin orally and, 6 h later, 12 500 units of calcium heparin subcutaneously.

A large lower lip haematoma and extensive bruising was noted 10 h after the thrombolytic treatment (see Fig. 1a). No further heparin or aspirin were administered

Correspondence: Dr C. F. M. Weston, Department of Cardiology, University Hospital of Wales, Cardiff CF4 4XN.

Fig. 1 (a) Lower lip haematoma, (b) Subcutaneous bruising. Two days after admission.

and 2 units of fresh frozen plasma were infused to correct clotting abnormalities. The haemoglobin concentration fell by 5 g/dl over the next 36 h with concomitant reticulocytosis and thrombocytosis. She developed left ventricular failure, requiring diuretic therapy and the cautious transfusion of 3 units of packed red blood cells.

An echocardiogram revealed reduced posterior and lateral left ventricular wall movement. The lip haematoma and chest bruising had largely resolved at the time of discharge.

DISCUSSION

Thrombolytic therapy is recognized as an effective way of reducing mortality in acute myocardial infarction, GISSI study group (1986), ISIS-2 study group (1988), AIMS study group (1990). The risk of significant bleeding is small and is outweighed by the potential benefit of treatment in the majority of patients, ISIS-2 study group (1988). However, the risk: benefit ratio in patients who have undergone cardiopulmonary resuscitation and who would otherwise be eligible for thrombolytic therapy has not been adequately assessed.

Such patients were specifically excluded in the AIMS study, but not by the GISSI or ISIS-2 investigators. According to the Data Sheets, anistreplase is contraindicated following recent traumatic resuscitation, streptokinase in resuscitation within the previous 10 days and rt-PA in prolonged or traumatic resuscitation.

Analysis of the TAMI trial suggests that resuscitation from cardiac arrest should not be a contraindication to thrombolysis providing the resuscitation efforts were successful within 10 minutes, Califf *et al.* (1988). However, fatal intrathoracic haemorrhage following treatment with streptokinase has been reported in a patient who had undergone cardiac massage, complicated by rib fractures, though the duration of the resuscitation was not specified, Haugeberg *et al.* (1989).

There was no evidence of bony injury in our patient but there was still sufficient subcutaneous bleeding to necessitate blood transfusion. The unusual lower lip haematoma resulted, we feel, from the forceful removal of an endotracheal tube.

With increasing numbers of extended-trained ambulance crews and the use of advisory defibrillators there will be greater numbers of patients brought to hospital following successful out-of-hospital resuscitation. There were 180 such admissions to Scottish hospitals between October 1988 and September 1989, Cobbe *et al.* (1990). Up to half of these patients will have evidence of acute myocardial infarction and admitting doctors will be faced with the decision to give or withhold thrombolytic therapy.

ACKNOWLEDGEMENTS

We acknowledge the assistance of Ambulance men Ian Smith and Nigel Theo in the management of this patient.

Dr Weston is Prophit-Rosser Fellow of the Royal College of Physicians of London.

REFERENCES

- AIMS trial Study Group. (1990) Long term effects of intravenous anistreplase in acute myocardial infarction: final report of the AIMS study. *Lancet* **335**, 427–31.
- Califf R. M., Topol E. J., Kereiakes D. J. *et al.* (1988) Cardiac resuscitation should not be a contraindication to thrombolytic therapy for myocardial infarction (abstr). *Circulation* **78** (suppl II), II–127.
- Cobbe S. M., Redmond M. J., Hollingworth J., Carrington D. J. (1990) Heartstart Scotland: initial experience of a nationwide scheme for out of hospital defibrillation by ambulance crew (abstr). *British Heart Journal* **64**, 65.
- Gruppo Italiano per studio della streptochinasi nell'infarcto miocardico (GISSI) (1986) Effectiveness of intravenous thrombolytic treatment in acute myocardial infarction. *Lancet* **i**, 397–402.
- Haugeberg G., Bonarjee V., Dickstein K. Fatal intrathoracic haemorrhage after cardiopulmonary resuscitation and treatment with streptokinase and heparin. *British Heart Journal* **62**, 157–8.
- ISIS-2 Collaborative Group. (1988) Randomized trial of intravenous streptokinase, oral aspirin, both, or neither among 17, 187 cases of suspected acute myocardial infarction. ISIS-2. *Lancet* **ii**, 349–60.