

MYOCARDIAL INFARCTION II:
Posthospital Discharge Management

PARKLAND MEMORIAL HOSPITAL
MEDICAL GRAND ROUNDS

October 22, 1981

Lawrence S. Cohen, M.D.

OUTLINE

1. Exercise Testing	1 - 12
2. Ambulatory Electrocardiographic Monitoring	13 - 18
3. Radionuclide Testing	19 - 26
4. Beta Adrenergic Blockade	27 - 31
5. Anticoagulation	32 - 41
6. Platelet Active Drugs	42 - 50
7. Rehabilitation	41 - 54
8. Coronary Artery Bypass Grafting	55
9. Antidysrhythmics	56 - 60

3. Cain, R. W., Farn, B., Gotsch, S., Brand, R., Goldschlager, N. Use of Treadmill Score to Quantify Ischemic Response and Predict Extent of Coronary Disease. *Circulation* 58:229, 1979.

4. Marston, F. P., and Marston, R. P. Response of Heart Rate to Exercise Test 1 Week After a Myocardial Infarction. *Circulation* 61:236, 1980.

5. Sterling, J. B., Pearson, M. B., Campbell, S. P., O'Rourke, S. A. Exercise Testing Early After Myocardial Infarction. Predictive Value for Subsequent Ischemic Signs and Death. *Am J Cardiol* 45:607, 1980.

6. Rogers, G. E., Kruger, H., Goldmann, C. M., Lopez, F. O. Response to Exercise Early After Uncomplicated Acute Myocardial Infarction in Patients Receiving no Medication. Long-Term Follow-Up. *Am J Cardiol* 48:764, 1982.

10. Sivapalan, R. S., and Moore, R. A. Early Exercise Testing after Myocardial Infarction. *Cardio-Vascular Nursing* 12:7, 1991.

11. Goldschlager, N. Treadmill Exercise Tolerance Score After Acute Myocardial Infarction. *Cardiovascular Review & Reports* 1:367, 1980.

12. DeBusk, R. F., and Haskell, W. L. Symptom-Limited vs Non-symptom-Limited Exercise Testing Score After Myocardial Infarction. *Circulation* 61:778, 1980.

REFERENCES

1. Exercise Testing

1. Ibsen, H., Kjoller, E., Styperrek, J. and Pedersen, A.: Routine Exercise ECG Three Weeks After Acute Myocardial Infarction. *Acta Med. Scand.* 198:463, 1975.
2. Wohl, A.J., Lewis, H.R., Campbell, W., Karlsson, E., Willerson, J.T., Mullins, C.B., and Blomqvist, C.G.: Cardiovascular Function during Early Recovery from Acute Myocardial Infarction. *Circulation* 56:931, 1977.
3. Markiewicz, W., Houston, N., and DeBusk, R.F.: Exercise Testing Soon after Myocardial Infarction. *Circulation* 56:26, 1977.
4. Weiner, D.A., Ryan, T.J., McCabe, C.H., Kennedy, J.W., Schloss, M., Tristani, F., Chaitman, B.R., and Fisher, L.D.: Exercise Stress Testing: Correlations among History of Angina, ST-segment Response and Prevalence of Coronary-Artery Disease in the Coronary Artery Surgery Study (CASS). *New Engl. J. Med.* 301:230, 1979.
5. Waters, D.D., Theroux, P., Halphen, C., Mizgala, H.F.: Clinical Predictors of Angina following Myocardial Infarction. *Amer. Jrl Med* 66:991, 1979.
6. Cohn, K., Kamm, B., Fetieh, N., Brand, R., Goldschlager, N.: Use of Treadmill Score to Quantify Ischemic Response and Predict Extent of Coronary Disease. *Circulation* 59:286, 1979.
7. Davidson, D.M., and DeBusk, R.F.: Prognostic Value of a Single Exercise Test 3 Weeks after Uncomplicated Myocardial Infarction. *Circulation* 61:236, 1980.
8. Starling, M.R., Crawford, M.H., Kennedy, G.T., O'Rourke, R.A.: Exercise Testing Early after Myocardial Infarction: Predictive Value for Subsequent Unstable Angina and Death. *Amer Jrl Cardiology* 46:909, 1980.
9. Koppes, G.M., Kruyer, W., Beckmann, C.H., Jones, F.G.: Response to Exercise Early After Uncomplicated Acute Myocardial Infarction in Patients Receiving No Medication: Long-Term Follow-Up. *Amer Jrl Cardiology* 46:764, 1980.
10. Sivarajan, E.S., and Bruce, R.A.: Early Exercise Testing after Myocardial Infarction. *Cardio-Vascular Nursing* 17:1, 1981.
11. Goldschlager, N.: Treadmill Exercise Testing Soon After Acute Myocardial Infarction. *Cardiovascular Reviews & Reports* 1:397, 1980.
12. DeBusk, R.F., and Haskell, W.: Symptom-limited vs Heart-rate-limited Exercise Testing Soon After Myocardial Infarction. *Circulation* 61:738, 1980.

2. Ambulatory Electrocardiographic Monitoring

13. Ericsson, M., Granath, A., Ohlén, P., Södermark, T. and Volpe, U.: Arrhythmias and Symptoms during Treadmill Testing Three Weeks after Myocardial Infarction in 100 Patients. *Br Ht Jrl* 35:787, 1973.
14. Moss, A.J., Davis, H.T., DeCamilla, J., and Bayer, L.W.: Ventricular Ectopic Beats and their Relation to Sudden and Nonsudden Cardiac Death after Myocardial Infarction. *Circulation* 60:998, 1979.
15. DeBusk, R.F., Davidson, D.M., Houston, N., Fitzgerald, J.: Serial Ambulatory Electrocardiography and Treadmill Exercise Testing after Uncomplicated Myocardial Infarction. *Amer Jrl Cardiology* 45:547, 1980.
16. Ruberman, W., Weinblatt, E., Goldberg, J., Frank, C., and Shapiro, S.: Ventricular Premature Beats and Mortality after Myocardial Infarction. *New Engl J Med.* 297:750, 1977.
17. Moss, A., DeCamilla, J., Mietlowski, W., Greene, W., Goldstein, S. and Locksley, R.: Prognostic Grading and Significance of Ventricular Premature Beats after Recovery from Myocardial Infarction. *Circulation* 51 and 52 (suppl. 3):204, 1975.
18. Moss, A., Davis, H., DeCamilla, J., and Bayer, L.: Ventricular Ectopic Beats and their Relation to Sudden and Nonsudden Cardiac Death after Myocardial Infarction. *Circulation* 60:998, 1979.

3. Radionuclide Testing

19. Parkey, R.W., Bonte, F.J., Stokely, E.M., Buja, L.M., Willerson, J.R.: Analysis of Tc-99m stannous pyrophosphate myocardial scintigrams in 242 patients. *J. Nucl. Med.* 16:556, 1975.
20. Willerson, J.R., Parkey, R.W., Bonte, F.J., Meyer, S.L., Atkins, J.M. and Stokely, E.M.: Technetium Stannous Pyrophosphate Myocardial Scintigrams in Patients with Chest Pain of Varying Etiology. *Circulation* 51:1046, 1975.
21. Schulze, R.A., Jr., Strauss, H.W., and Pitt, B.: Sudden Death in the Year following Myocardial Infarction: Relation to Ventricular Premature Contractions in the Late Hospital Phase and Left Ventricular Ejection Fraction. *Amer Jrl Med* 62:192, 1977.
22. Berger, H.J., Gottschalk, A., Zaret, B.L.: Dual Radionuclide Study of Acute Myocardial Infarction. *Annals of Int. Med.* 88:145, 1978.

23. Silverman, K.J., Becker, L.C., Bulkley, B.H., Burow, R.D., Mellits, E.D., Kallman, C.H., and Wesifeldt, M.L.: Value of Early Thallium-201 Scintigraphy for Predicting Mortality in Patients with Acute Myocardial Infarction. *Circulation* 61:996, 1980.
 24. Taylor, G.J., Humphries, J.O., Mellits, E.D., Pitt, B., Schulze, R.A., Griffith, L.S.C. and Achuff, S.C.: Predictors of Clinical Course, Coronary Anatomy and Left Ventricular Function after Recovery from Acute Myocardial Infarction. *Circulation* 62:960, 1980.
 25. Shah, P.K., Pichler, M., Berman, D.S., Maddahi, J., Peter, T., Singh, B.N., Swan, H.J.C.: Noninvasive Identification of a High Risk Subset of Patients with Acute Inferior Myocardial Infarction. *Amer Jrl Cardiology* 46:915, 1980.
 26. Turner, J.D., Schwartz, K.M., Logic, J.R., Sheffield, L.T., Kansal, S., Roitman, D.I., Mantle, J.A., Russell, R.O., Jr., Rackley, C.E., and Rogers, W.J.: Detection of Residual Jeopardized Myocardium 3 Weeks after Myocardial Infarction by Exercise Testing with Thallium-201 Myocardial Scintigraphy. *Circulation* 61:729, 1980.
4. Beta Adrenergic Blockade
27. Wilhelmsson, C., Vedin, J.A., Wilhelmsen, L., Tibblin, G., Werkö, L.: Reduction of Sudden Deaths after Myocardial Infarction by Treatment with Alprenolol. *Lancet*, 7890, November, 1974.
 28. Multicentre International Study: Improvement in Prognosis of Myocardial Infarction by Long-term Beta-adrenoreceptor Blockade using Practolol. *Br Med Jrl* 3:735, 1975.
 29. Baber, N.S., Evans, D.W., Howitt, G., Thomas, M., Wilson, C., Lewis, J.A., Dawes, P.M., Handler, K., Tuson, R.: Multicentre Post-infarction Trial of Propranolol in 49 Hospitals in the United Kingdom, Italy, and Yugoslavia. *Br Ht Jrl* 44:96, 1980.
 30. Wilcox, R.G., Roland, J.M., Banks, D.C., Hampton, J.R., Mitchell, J.R.A.: Randomized Trial Comparing Propranolol with Atenolol in immediate Treatment of Suspected Myocardial Infarction. *Br Med Jrl* 280:885, 1980.
 31. Norwegian Multicenter Study Group: Timolol-induced Reduction in Mortality and Reinfarction in Patients Surviving Acute Myocardial Infarction. *New Engl Jrl Med* 304:803, 1981.
5. Anticoagulation
32. Chalmers, T.C., Matta, R.J., Smith, H., Jr., and Kunzler, A.M.: Evidence Favoring the Use of Anticoagulants in the Hospital Phase of Acute Myocardial Infarction. *New Engl Jrl Med* 297:1091, 1977.

33. Modan, B., Shani, M., Schor, S., and Modan, M.: Reduction of Hospital Mortality from Acute Myocardial Infarction by Anticoagulant Therapy. *New Engl Jrl Med* 292:1360, 1975.
 34. Mitchell, J.R.A.: Anticoagulants in Coronary Heart Disease - Retrospect and Prospect. *Lancet* 1:257, 1981.
 35. An Assessment of Long-term Anticoagulant Administration after Cardiac Infarction: Report of the Working Party on Anticoagulant Therapy in Coronary Thrombosis to the Medical Research Council. *Br Med Jrl* 1: 803, 1959.
 36. An Assessment of Long-term Anticoagulant Administration after Cardiac Infarction: Second Report of the Working Party on Anticoagulant Therapy in Coronary Thrombosis to the Medical Research Council. *Br Med Jrl* 2:837, 1964.
 37. Wasserman, A.J., Guttermann, L.A., Yoe, K.B., Kemp, V.E., Richardson, D.W.: Anticoagulants in Acute Myocardial Infarction: The Failure of Anticoagulants to Alter Mortality in Randomized Series. *Am Ht Jrl* 71:43, 1966.
 38. Seaman, A.J., Griswold, H.E., Beaume, R.B., Ritzmann, L.: Long-term Anticoagulant Prophylaxis after Myocardial Infarction. *New Engl Jrl Med* 281:115, 1969.
 39. Breddin, K.: Multicenter Two-year Prospective Study on the Prevention of Secondary Myocardial Infarction by ASA in Comparison with Phenoprocoumon and Placebo. In *Multicenter Controlled Trials: Principles and Problems*, edited by Boissel, J.P., Klimt, C.R., Paris, INSERM 76:79, 1977.
 40. Breddin, K., Loew, D., Lechner, K., Uberla, K., Walter, E.: Secondary Prevention of Myocardial Infarction. Comparison of Acetylsalicylic Acid, Phenoprocoumon and Placebo. A Multicenter Two-year Prospective Study. *Thromb Haemostas* 40:225, 1979.
 41. The Sixty Plus Reinfarction Study Research Group: A Double-blind Trial to Assess Long-term Oral Anticoagulant Therapy in Elderly Patients after Myocardial Infarction. *Lancet* 2:989, 1980.
6. Platelet Active Drugs
42. Elwood, P.C., Cochrane, A.L., Burr, M.L., Sweetnam, P.M., Williams, G., Welsby, E., Hughes, S.J., Renton, R.: A Randomized Controlled Trial of Acetyl Salicylic Acid in the Secondary Prevention of Mortality from Myocardial Infarction. *Br Med Jrl* 1:463, 1974.
 43. Elwood, P.C., and Sweetnam, P.M.: Aspirin and Secondary Mortality after Myocardial Infarction. *Circulation* 62(suppl V), V-53, 1980.

44. Aspirin Myocardial Infarction Study Research Group: A Randomized, Controlled Trial of Aspirin in Persons Recovered from Myocardial Infarction. *JAMA* 243:661, 1980.
45. The Persantine-Aspirin Reinfarction Study Research Group: Persantine and Aspirin in Coronary Heart Disease. *Circulation* 62:449, 1980.
46. The Persantine-Aspirin Reinfarction Study (PARIS) Research Group: The Persantine-Aspirin Reinfarction Study. *Circulation* 62(suppl V):V-85, 1980.
47. The Anturane Reinfarction Trial Research Group: Sulfinpyrazone in the Prevention of Cardiac Death after Myocardial Infarction. *New Engl Jrl Med.* 298:289, 1978.
48. The Anturane Reinfarction Trial Research Group: Sulfinpyrazone in the Prevention of Sudden Death after Myocardial Infarction. *New Engl Jrl Med* 302:250, 1980.
49. Sherry, S.: The Anturane Reinfarction Trial. *Circulation* 62(suppl V) V-73, 1980.
50. Wilcox, R.G., Richardson, D., Hampton, J.R., Mitchell, J.R.A., and Banks, D.C.: Sulphinpyrazone in Acute Myocardial Infarction: Studies on Cardiac Rhythm and Renal Function. *Br Med Jrl*, August, 1980.
51. Special Report: The FDA's Critique of the Anturane Reinfarction Trial. *New Engl Jrl Med* 303:1488, 1980.

7. Rehabilitation

52. Scheuer, J., Greenberg, M.A., and Zohman, L.R.: Exercise Training in Patients with Coronary Artery Disease. *Modern Concepts of Cardiovascular Disease* 1057:85, 1978.
53. Lee, A.P., Ice, R., Blessey, R., and Sanmarco, M.E.: Long-term Effects of Physical Training on Coronary Patients with Impaired Ventricular Function. *Circulation* 60:1519, 1979.
54. Kallio, V., Härmäläinen, H., Hakikila, J., and Luurila, O.J.: Reduction in Sudden Deaths by a Multifactorial Intervention Programme after Acute Myocardial Infarction. *Lancet* pp. 1091, 1979.

8. Coronary Artery Bypass Grafting

55. Coronary Artery Surgery Study Section: A Multicenter Comparison of the Effects of Randomized Medical and Surgical Treatment of Mildly Symptomatic Patients with Coronary Artery Disease, and a Registry of Consecutive Patients undergoing Coronary Angiography. *Circulation* 63:I-1, 1981.

56. Myerburg, R.J., Briesse, F.W., Conde, C., Mallon, S.M., Liberthson, R.R., and Castellanos, A., Jr.: Long-term Antiarrhythmic Therapy in Survivors of Prehospital Cardiac Arrest. JAMA 238:2621, 1977.
57. Liberthson, R.R., Nagel, E.L., Hirschman, J.C., et al: Prehospital Ventricular Fibrillation: Prognosis and Follow-up Course. New Engl Jrl Med 291:317, 1974.
58. Oliver, G.C., Nolle, F.M., Tiefenbrunn, Jr., et al: Ventricular Arrhythmias Associated with Sudden Death in Survivors of Acute Myocardial Infarction. Amer Jrl Cardiology 33:160, 1974.
59. Schaffer, W.A., Cobb, L.A.: Recurrent Ventricular Fibrillation and Modes of Death in Survivors of Out-of-hospital Ventricular Febrillation. New Engl Jrl Med 293:259, 1975.
60. Kosowsky, B.D., Taylor, J., Lown, B., et al: Long-term Use of Procainamide following Acute Myocardial Infarction. Circulation 47:1204, 1973.