

Table 8-1. Normal Q-T Interval

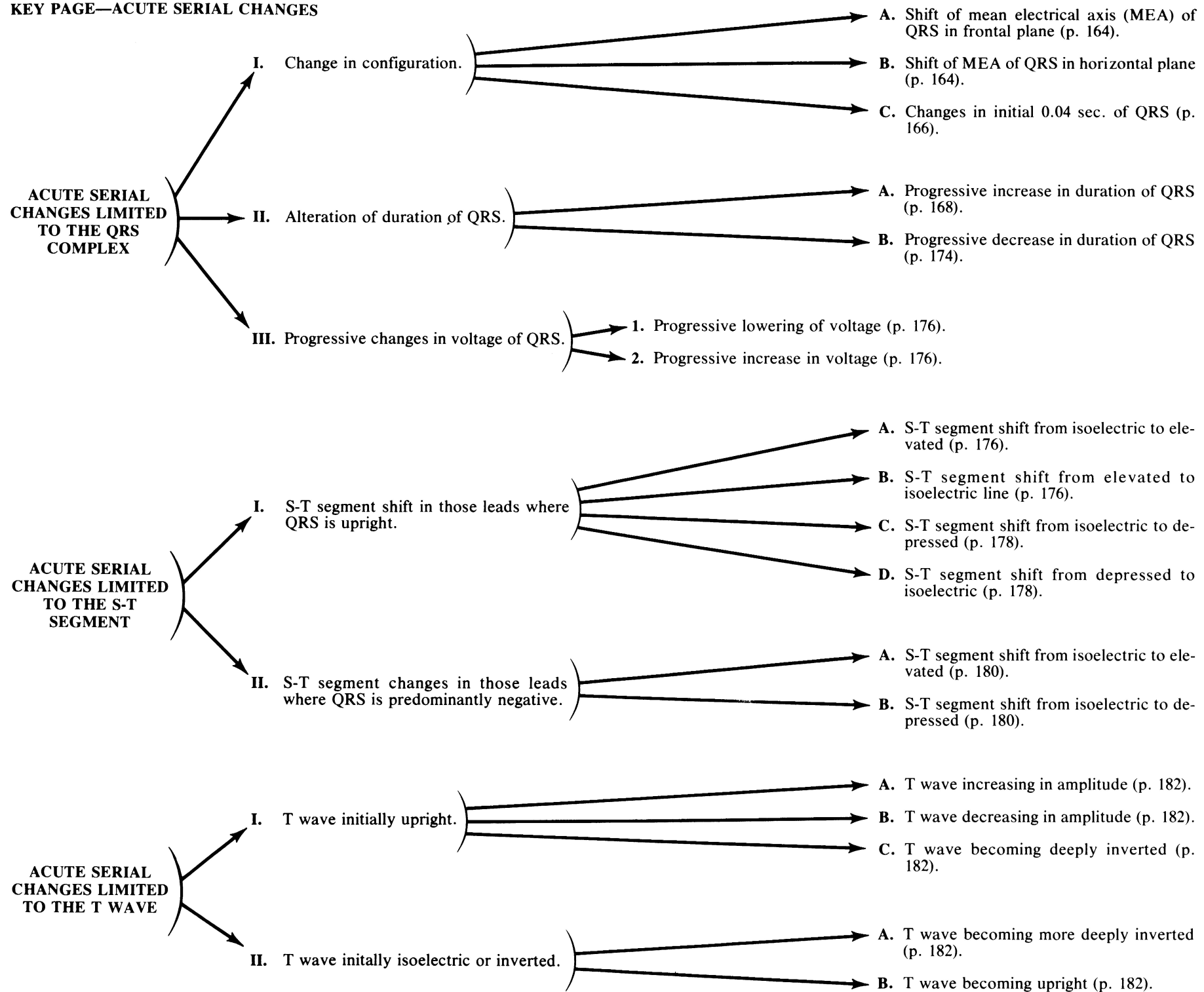
<i>Heart rate</i>	<i>Duration of Q-T interval in seconds</i>
40-50	0.41-0.45
51-60	0.41-0.39
61-70	0.38-0.36
71-80	0.36-0.34
81-90	0.32-0.33
91-100	0.31-0.32
101-120	0.28-0.31
121-140	0.27-0.28
141-160	0.23-0.25

CHAPTER 9

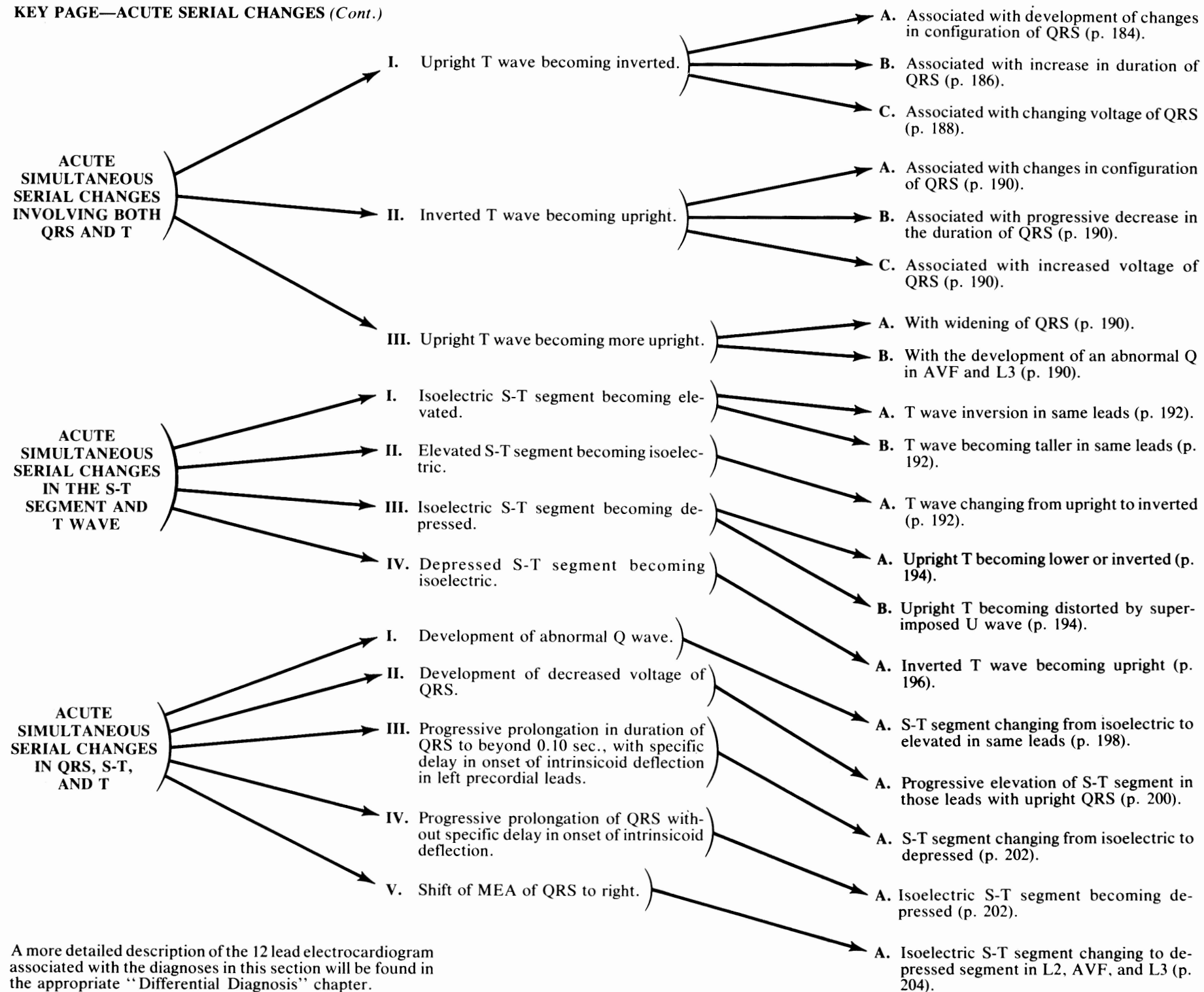
Differential Diagnosis Based upon Acute Serial Changes

(Changes Occurring Within Several Hours to Several Days)

KEY PAGE—ACUTE SERIAL CHANGES



KEY PAGE—ACUTE SERIAL CHANGES (Cont.)

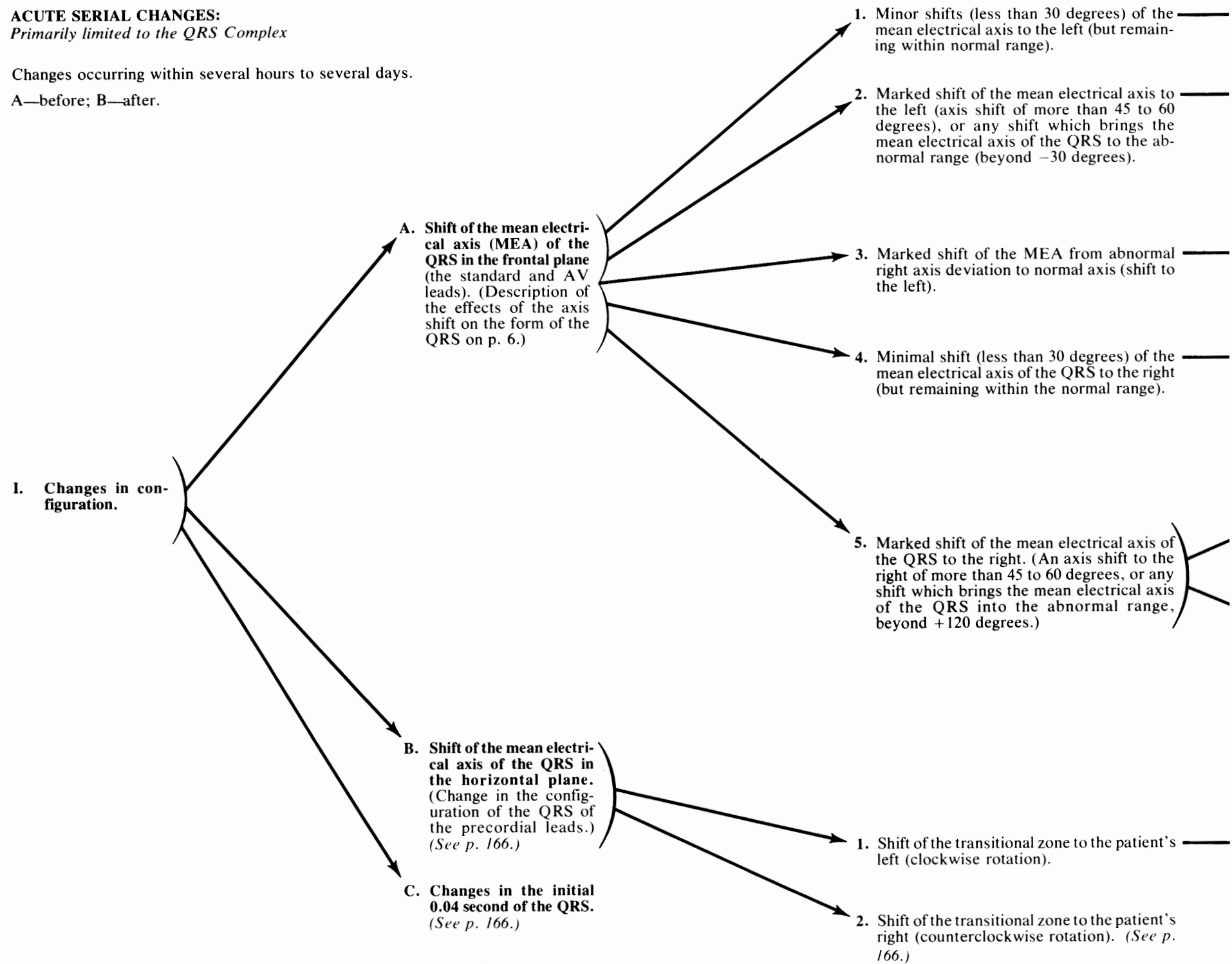


ACUTE SERIAL CHANGES:

Primarily limited to the QRS Complex

Changes occurring within several hours to several days.

A—before; B—after.



*If the diagnosis remains in doubt, further electrocardiograms may lead to a more specific diagnosis.

Shift of the electrical axis of the heart. Not clinically significant.

With Q in AVF and L3 and frequently L2. Usually **acute inferior wall myocardial infarction**. qR in L1 and rS in L2 to L3 and AVF. Left anterior hemiblock (usually with slight widening of the QRS). (See Fig. R 39.)

Return to normal of an acute right axis shift. (See 4 and 5 below.)

Usually of no clinical significance. However, on occasion, may be the only manifestation of **acute cor pulmonale**.

Usually abnormal but may rarely occur normally with deep inspiration or relief of abdominal distension. Usually associated with **acute myocardial infarction** or **acute cor pulmonale**, in both of which other and more characteristic electrocardiographic changes usually occur.*

In the absence of acute cor pulmonale the appearance of an rS in L1 and a small q and tall R in L3 indicates the development of **left posterior hemiblock** (usually with slight widening of QRS). (See Fig. R 42.)

Usually of no clinical significance* unless associated with other electrocardiographic signs. Occasionally associated with acute cor pulmonale.

FIG. Ser1A
control

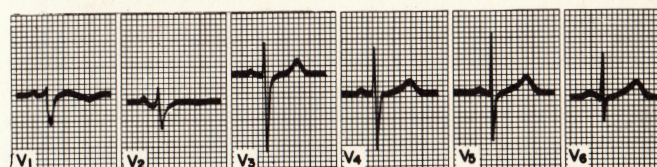
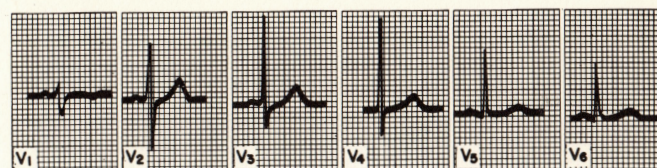
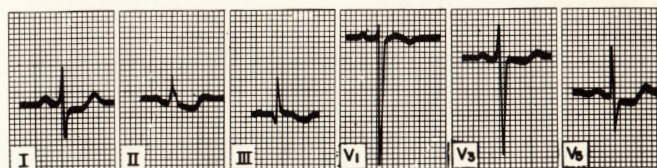
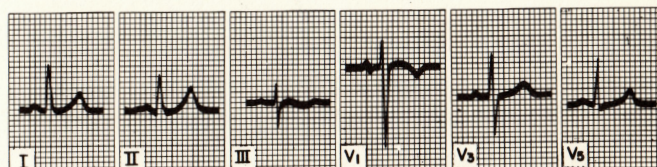
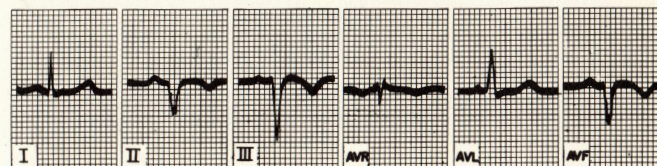
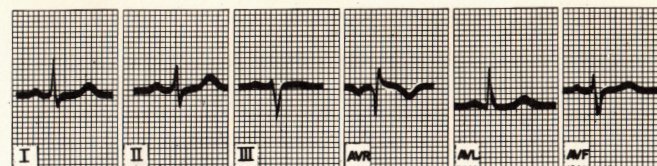
FIG. Ser1B

FIG. Ser2A
control

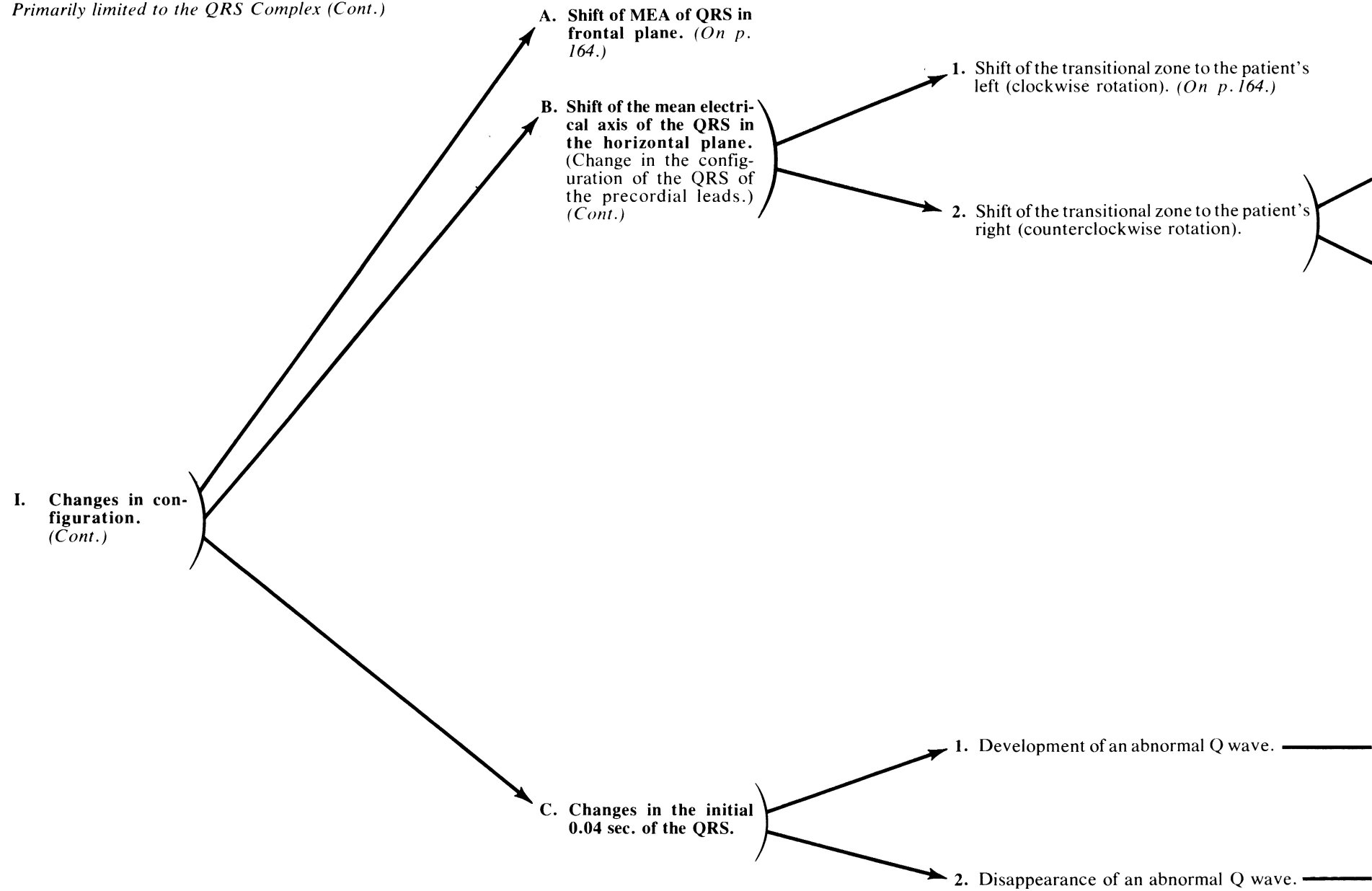
FIG. Ser2B

FIG. Ser3A
control

FIG. Ser3B



ACUTE SERIAL CHANGES:
Primarily limited to the QRS Complex (Cont.)

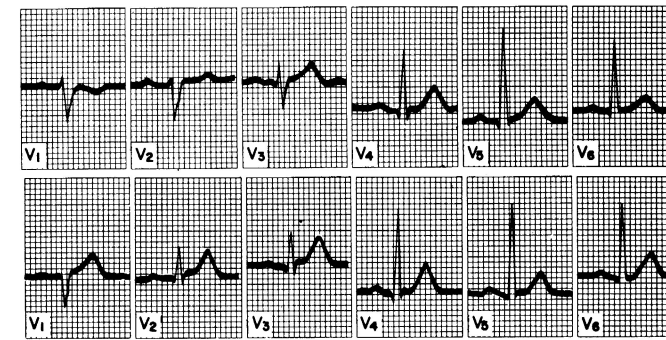


*Such changes may be due to variations in electrode placement or smearing of electrode paste between lead points on the chest.
†The transposition of right and left arm leads may result in an abnormal Q wave in lead I, but both the P and T will be inverted.

Usually of no clinical significance* unless associated with other and more characteristic electrocardiographic changes.

FIG. Ser4A
control

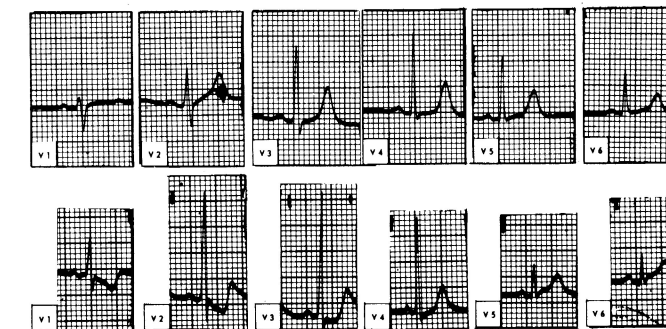
FIG. Ser4B



When counterclockwise rotation is marked and leads to R greater than S in V1, the additional diagnosis of **acute cor pulmonale** or **posterolateral infarction** should be considered.

FIG. Ser5A

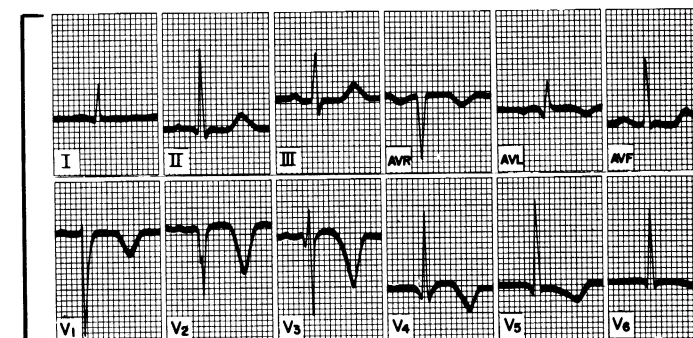
FIG. Ser5B



If an abnormal Q wave develops during the period of observation, regardless of previous electrocardiographic pattern, the diagnosis is usually **acute myocardial infarction**. (Fig. Ser 6B; Q appears in L2, L3 and AVF) or altered lead placement (or mixing of leads).† Other occasional causes of abnormal Q waves are discussed on page 72.

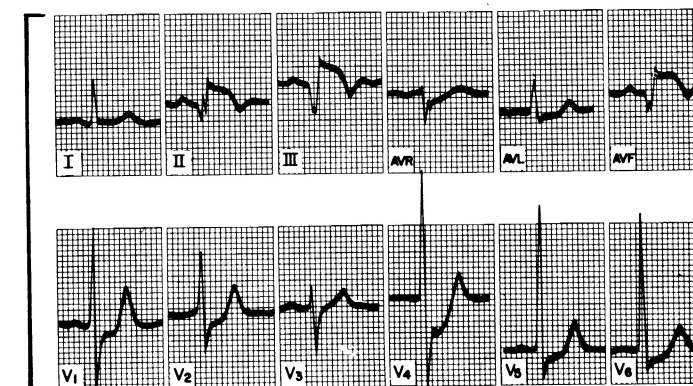
FIG. Ser6A

FIG. Ser6B

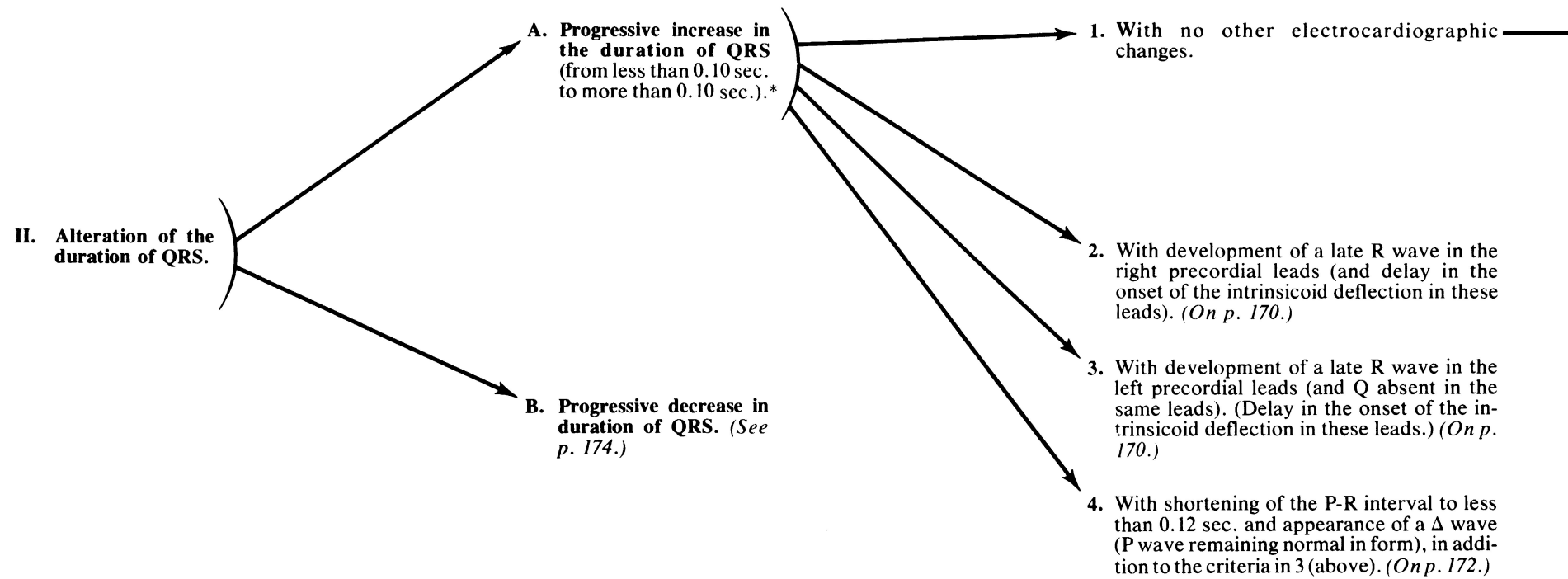


This may be due to:

1. Healing of a myocardial infarction.
2. Infarction of the opposite wall (Q of V2, V3, V4 of Fig. Ser6A, disappears in 6B).
3. Development of left bundle branch block.
4. When present in AVF and L3 only, may be due to altered position of the patient.
5. Serial change in recovery phase of acute cor pulmonale. (Loss of Q3 and QAVF.)
6. Recovery from transient acute myocardial ischemia.



ACUTE SERIAL CHANGES:
Primarily limited to the QRS Complex (Cont.)



*Prolongation of QRS frequently leads to S-T and T changes.

†Complete or incomplete bundle branch block may appear during a run of supraventricular tachycardia or during an irregular rhythm when it exceeds a critical rate. This may be due to fatigue of either of the bundles.

→ Development of intraventricular conduction defect.
May be due to:

1. Drugs
2. Acute myocardial damage
3. Tachycardia†
4. Electrolyte abnormalities
5. Nonspecific
6. ECG machine inadvertently running at 50 mm. per sec.

FIG. Ser7A

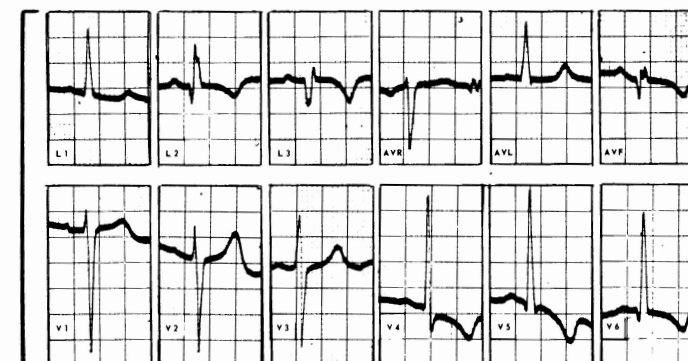


FIG. Ser7B

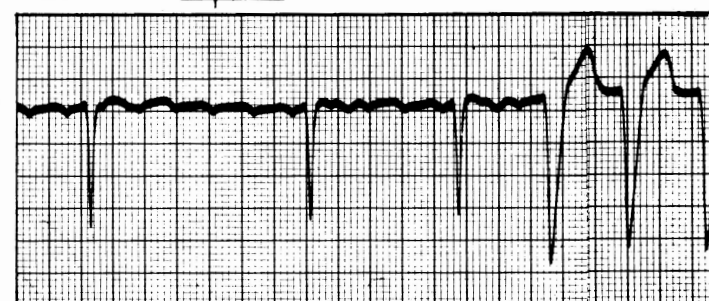
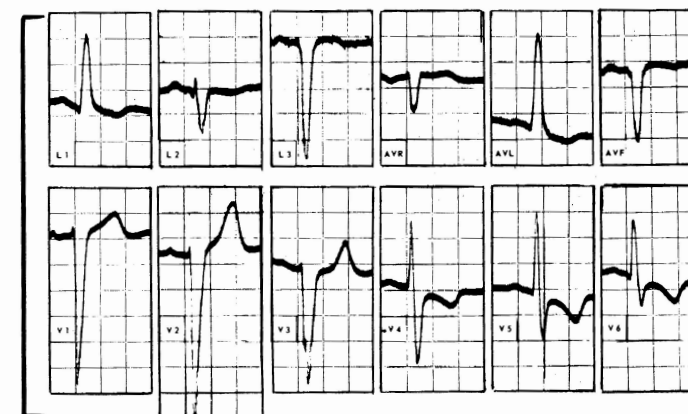


FIG. Ser8A

FIG. Ser8B

FIG. Ser9A

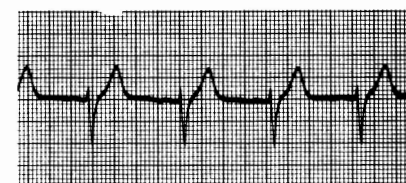


FIG. Ser9B

