

26 Apr.

(1)

Analysis of real time ambulatory analysis vs.
ambulatory ~~analysis~~ recording / high speed analysis.

The sole reason for this ^{proposed} change is
financial however since this is the most
significant consideration the change will
occur if direct analysis (DA) can approximate
Holter (H) performance. ~~This~~ The real question
then simply becomes can and when will
(H) performance be approached.

There is no question that real time
analysis can be performed and within the
confines of reasonable packages. The
remaining questions then become the

- 1) selection of criteria
- 2) ~~the~~ artefact discrimination

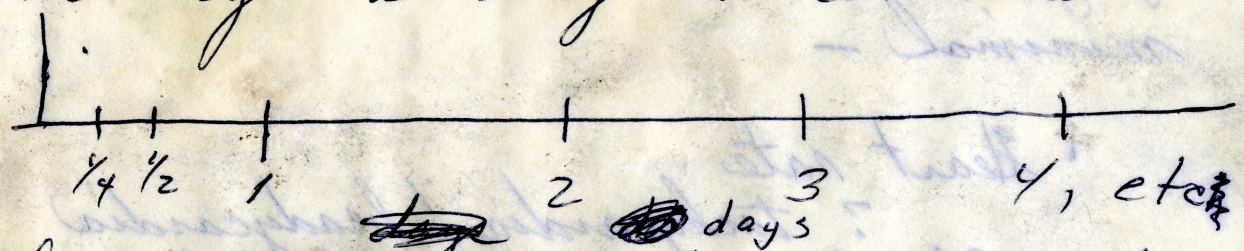
3) data management

4) confirmation

Items 1) + 3) are interrelated and are in turn ^{statistical} dependent upon criteria not yet determined i.e., ^{sensitivity or} what detection level is acceptable. This depends directly upon the

1) probability of a ~~serious~~ significant event occurring and 2) being detected / missed.

The correct way ^{to determine 1)} ~~is to~~ would be studies ^{or} analysis of studies ^{already} done which would relate length of time ~~to~~ recorded to percent of events detected eg - a study that continued



for days or weeks ~~or~~ and then

plotted probability
of detection vs.

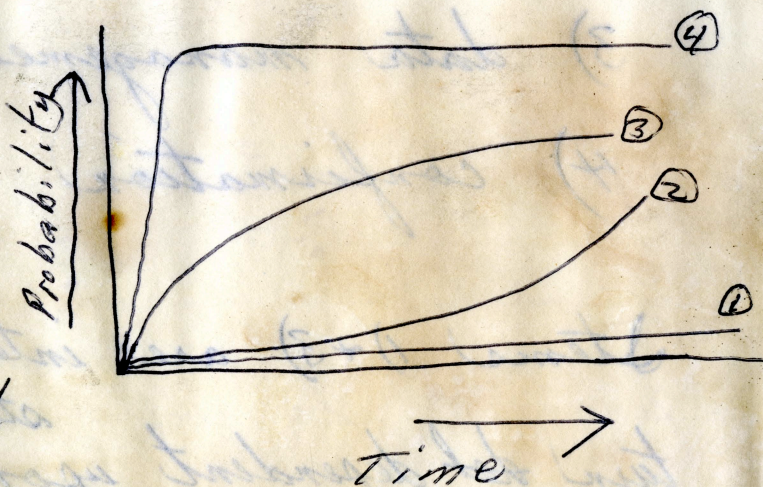
time. This in
will probably
turn ~~would~~ depend

upon the nature & cause of arrhythmia.

Alt Although this is the proper way
some level of monitoring has already
been accepted so the only question
here is selection of criteria and degree
of differentiation i.e. ~~individual~~ several
VPB morphologies vs simply VPB.

My opinion is that the following are
minimal -

- Heart rate
 - ? tachycardia / bradycardia
- Atrial premature & fibrillation



VPB's

? \bar{C} coupling, runs, R or T, etc -
 ST depression / elevation
 ? slope

Patient input of sx.

Artefact discrimination

Very little has been done here and both high frequency and low frequency baseline shifts should be detected & indicated & no analysis attempted on those ~~px~~ parameters affected by the noise

Data Management is closely linked to confirmation and display -

The ~~form~~ date & time of ^{display} all significant events and their significant parameters ~~then~~ must be recorded as must 'continuous' rate & possibly ST depression - one min. or longer ~~samples~~ ^{means} might be adequate here.

Confirmation is currently the ~~it~~ one of the major contentions current which will pass if and when reliability & sensitivity are assured. Since this may be quite a while I feel that ~~rather~~ as you do that rather

than resort to elaborate sampling attempts
 the whole thing should be saved. However,
 this is in conflict \bar{c} the *raison de être*
 for ~~these~~ ambulatory analysis i.e. it will, ^{it} must
 increase expense very significantly. This is a
 crucial practical matter).

Current status - ~~of the 7 reported~~
 considerable time was spent \bar{c} the following
^{at the ACC}
~~were~~ ~~builders~~ vendors, whose general characteristics
 are listed (the others will be covered) I.M.C.
 wouldn't discuss their unit) ~~their staff is~~

t. The Datamedix system is
smuglers + chest above anyone else
both in concept + evolution and especially
personnel. Apparently retired IBM senior staff
did the design which is nothing short of
incredible in the small pkg. Suspect acceptance
is slow but medical interest v. high. They
have several studies in work / publication
and I read an H/S M55 by a Dr. Belic of
Northwestern who had recorded 53 pts. in
parallell \bar{c} an Avionics 445^{+660A} from V₁ to V₅
A blind analysis of the Idolter was done \bar{c}
initial ~~to~~ routine scanning and detailed analyses
by cardiologists of 24 to 50, 12 min. segments
of the tape. Three ~~Avionics~~ Idolter records were
lost through recorder failures. 6 from Pegasus
for noise, etc. There was ~~to~~ the SVE's were
in error (from a programming quirk) but the
analyses were otherwise equivalent. Circamed
was very limited but had considerable
tape storage capacity.

Aegis had an aggressive group \bar{c}
tase has both sat reduced data & EKG ~~to~~
(~~...~~) storage. They had obviously placed
great ~~em~~ emphasis ventricular arrhythmias
and used a 'template' (actually slope/area)
scheme to record up to 5 configurations but
had no ST meas. It was crude ~~to~~
compared to Pegasus.

Circadian
Circamed

Datamedix
Pegasus

Med Concepts
Regis

Survival
Technology

ICR

Playback

9.2 K

35.9 K

19 K (? 1 recorder)

Recorder

4.5 K

4 K

+ 1 K for training
5 K

Confirmation

150 X 10 sec.
epochs

24 min total. in
6 sec. segments
(sample q 15 min)

Report Format 5" \bar{c} rate

+ PUC's vs time

Rate

Yes

9-15 min

Yes

SVG

VPA

width +
rate

~~ST~~

ST

No