177 *RELIABILITY OF SOFTWARE PACEMAKERS.*
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We implanted software pacemakers (SWPM) in 23
patients (pts): 18 received a Lidia 3, to detect
pauses, and 5 a Lidia 4, with Holter function.

Lidia 3 has a programmable hysteresis. A secu-
rity process precludes sustained bradycardia.
Telemetry indicates if Lidia 3 has detected the
maximal RR cycle allowed. 24-h recording documen-
ted the accuracy of telemetric data in all pts.
In 8, AV block was documented or provoked by aj-
malin test: these 8 pts had positive responses
from the SWPM. Of the remaining 10 pts with his-
tory of syncope but no documented AV or SA block,
SWPM revealed R-R cycles > 2.5s in 6 symptom-free
pts and < 2.5 s in 4 pts, 2 still having syncopes
of unknown origin.

Lidia 4 count extrasystoles, couplets, triplets
and runs of tachycardia, according to their abso
lute or relative prematurity. It was used in 5 pts
with supraventricular tachycardia and SA or AV
block. Follow-up verified the reliability of the
device according to the programmed criteria. In
3 pts attacks of tachycardia were correctly de-
tected by SWPM. Arrhythmias were controlled by
drugs in 3 pts, or ablation of His bundle in 2,
and SWPM no longer detects any tachycardia.

We conclude that the reliability of SWPM is sa-
tisfactory. These devices may be helpful for do-
cumenting pauses or for monitoring the therapy.

179 **PREDICTING FACTORS FOR SURVIVAL OF PATIENTS WITH CARDIAC PACEMAKERS**
J.R. Sant'Anna, F.A. Lucchese, R.A.K. Kalil, P.R. Prates, E. Pereira, I.A. Nesralla – Instituto de Cardiologia do Rio Grande do Sul – Porto Alegre, RS, Brazil.

A retrospective study of 430 patients (pt.) with a cardiac pacemaker implanted during a 12 year interval for atrioventricular (AV) conduction disturbances was used to estimate the postoperative (p.o.) survival probability and the predicting factors for survival. The influence over the results of the following characteristics of the population were studied: sex, age, ethiology and type of AV conduction disturbance, functional class of NYHA, presence of congestive heart failure, year of surgery. The p.o. survival probability was 92,27% in the 1st year, 90,51% in the 2nd, 81,15% in the 5th year and 76,15% from the 7th to the 10th year. Aged pt. (>60 years), with important functional limitation (classes III e IV, NYHA), with congestive heart failure or who were operated in the first 4 years of the surgical experience showed a reduced p.o. survival probability when compared to those that did not present such characteristics. The results indicate that survival probability of pt. with PM is superior to that described in the literature for pt. with AV block (nearly 50% in the first year after diagnosis) and make possible to identify pt. with increased risk in the late p.o. period.

178 PACEMAKER LONGEVITY IN 1981, 1982 AND 1983.
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We have compared the performance of 7 different pacemakers (PM). With one-way analysis of variance an F-value of 44.2 was obtained (p < 0.001). The multiple comparison method of Tukey-Kramer revealed significant differences between the individual types. The General Electric 2075 PM had the best performance.

Table: Longevity* in months

	NUMBER A	NUMBER B	MEAN A	MEAN B	S.D. A	S.D. B
CPI 502	14	11	61.3	62.7	7.7	7.4
CPI 504	21	9	62.2	60.7	8.5	8.2
Cordis 190	13	8	48.2	43.0	13.2	12.4
Vit. C 2130	12	9	70.0	71.4	4.9	2.9
Vit. 42 RTa	20	17	53.0	53.5	10.8	11.4
G.E. 2075	25	17	86.6	87.1	7.3	8.3
G.E. 2076	12	10	78.4	79.1	7.0	7.4

* All extra-generator causes for replacements (R) are excluded.
A Elective R plus R of PM meeting their end-of-life characteristics (EOL).
B R of PM meeting their EOL; exclusion of elective R.

180 A SIMPLE METHOD FOR PULSE-WAVE ANALYSIS OF IMPLANTED PACEMAKERS AND ELECTRODE CIRCUITS
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Diagnosis of pacemaker malfunction requires routine analysis of accumulated data. Waveform analysis of implanted pacemakers and electrode circuits has been used as an additional diagnostic tool for localization of defects in the pacemaker or electrode circuit. A buffer memory device has been developed so that fast pace pulses can be recorded with standard electrocardiogram (ECG) recorders. The device records a few milliseconds of data in real time, then displays this data via an (ECG) recorder over a time interval of 2 seconds. The objective of this study was to eliminate the need for an oscilloscope and recording camera. This was achieved by adapting an inexpensive commercially available data trap. The pace pulse data is digitalized to 8 bit accuracy and stored in 1024 memory locations. The maximum sampling rate is limited to 500 kilohertz. ECG recorded pulse-wave data used in the Pacemaker Clinic as an integral part of pacemaker system evaluation proved to be rapid, reliable and a practical means of obtaining and filing pulse-wave forms as additional diagnostic data for timely trouble shooting.