SPECIAL ARTICLE

Reassurance in the Management of Benign Hypertensive Disease

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With the assistance of Margaret Wilson, R.N.

The therapeutic improvement achieved by administration of drugs in arterial hypertension and other disease states is widely recognized to be due to the potency of reassurance and suggestion as well as the possible pharmacologic action of the drugs employed. In this article Dr. Goldring and his associates evaluate the effectiveness of a calculated and deliberately dramatized regimen of reassurance on the blood pressure and on the symptoms in patients with benign hypertensive disease. These results help to explain why nonscientific treatment sometimes seems to be crowned with therapeutic success.—Ed.

To MANY investigators interested in the potential therapy of hypertensive disease, it has been evident that this therapy is complicated by the psychologic factor of reassurance. The present report is concerned with the assessment of the effectiveness of a calculated regimen of reassurance on blood pressure and subjective symptoms in patients with benign hypertensive disease. To reinforce the effectiveness of reassurance we used, as an adjunctival device, an "electron gun" that was designed to be as dramatic as possible, but without any known physiologic action other than a psychogenic one.

METHODS AND MATERIALS

The "electron gun" consisted of 3 parts: (1) a conventional, vertical Tesla coil, (2) a luminous radiator (the so-called "gun"), and (3) a standard cathode-ray oscillograph.

The Tesla coil, which was 24 inches high and 6 inches in diameter, was activated from a 15,000-volt neon sign transformer with an open type, noisy spark gap, activated by 110-volt 60-cycle alternating current. The secondary current from this transformer was further amplified by the Tesla coil to an undetermined but very high voltage so that a bluish brush-and-spark discharge radiated from the sharply pointed terminal on top. This electric discharge was clearly visible in a darkened room as a lightning-like corona several inches in radius, and was accompanied by the formation of considerable ozone. Accompanying the buzzing noise of the high-voltage discharge was the sharp, staccato noise of the spark gap.

The "electron gun" was fabricated from a conically shaped radar-tube casing 17 inches long and 8 inches in diameter at its larger end. Small blue and red lights were concealed in the smaller end of this conical tube in such a way that the light, reflected from a polished metal plate, gave the appearance of intensely high temperatures in the end of the "gun." The "gun" was attached by a single wire to the Tesla coil and superficially appeared to be activated by its brush-and-spark discharge. The "gun" was mounted on a swivel joint so that its axis could be directed toward any part of the patient's body while he sat comfortably in an arm chair.

A 4-inch cathode-ray oscillograph, activated by 110-volt 60-cycle alternating current, was placed beside the "electron gun" in a position where the screen was clearly visible to the patient. By appropriate manipulation the nurse could bring upon the screen a variety of sinusoidal waves, adjustment.
being continued until the pattern of the waves achieved a standard and preselected pattern.

Therapy with the “electron gun” was administered by a special nurse who was able to establish intimate friendship with each patient and to understand his or her difficulties. Every effort was made to obtain effective emotional transference to the nurse, and many patients became dependent on her for help in personal problems.

The patients were told that electronic devices of various types had been used successfully for the treatment of high blood pressure, and recommended that they undertake trial therapy with this particular instrument, with the assurance that it offered a high degree of potential effectiveness. No information on blood pressure was given to the patient, the nurse always replying to inquiries on this matter with reassuringly ambiguous answers.

For therapy, the patient was admitted to the therapy room and seated in a slant-back upholstered chair facing the “gun.” The light was then dimmed for several minutes to permit dark accommodation, during which time the nurse recorded the brachial blood pressure as determined by sphygmomanometer. On the first occasion when therapy was administered, she explained the operation of the “electron gun” in general terms, assuring the patient that though it might be frightening it was in no way dangerous. After dark accommodation had been achieved in 3 to 5 min., the “gun” was adjusted so that its “rays” were directed toward the patient’s chest, and the electric current was turned on. The nurse then adjusted the cathode-ray oscillograph to a predetermined pattern.

Treatment initially lasted for only 1 to 2 min., but the period of exposure was increased on subsequent visits to 5 min.

The patients were selected from the Hypertension and Nephritis Clinic of New York University College of Medicine. All had moderately advanced hypertensive disease in the benign phase, and were selected to exclude so far as possible both the early labile phase and the accelerated phase complicated by renal or cardiac failure.

**Hospitalized Patients**

Nine patients received therapy during hospitalization. Table 1 records the average blood pressures obtained. During hospitalization blood pressure was recorded 3 times a day, the figures being averaged for each day. The patients were maintained in semi-ambulation and therapy was not started until the pressure had apparently become stabilized for at least 2 weeks. Thereafter, “electron gun” therapy was administered every day for 5 days a week, the blood pressure being recorded before each treatment after the patient had entered the therapy room and had rested for a few minutes in the therapy chair. During this interval lengthy interviews and periodic physical examinations were made integral parts of the study, and placebos were used in a few instances to reinforce the effects of the “electron gun.” Therapy was continued until no further change in pressure was anticipated. The average pressure during therapy represents the average of all observations over a period of 1 week during which the pressure reached its apparently lowest values. The interval between beginning of therapy and attainment of these lowest pressures ranged from 1 to 5 weeks.

After cessation of therapy all patients were returned to the clinic and examined at intervals under the same circumstances as during the pretherapy period. The posttherapy blood pressure represents the average of all observations over a period ranging from 9 to 12 months, but excluding observations within 8 weeks of the end of intensive therapy.

**Out Patients**

Thirty-one patients received therapy as out patients, 9 of whom had also been treated in the hospital. Table 2 records the average pressure obtained.

During therapy the patients reported twice a week to the clinic where they were examined by the same physician and then admitted to the therapy room. Multiple pressure observations were made by the nurse at each visit after a short period of rest in the therapy room.

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**Table 1.—Effect of Intensive Reassurance Therapy on Blood Pressure of Hospitalized Patients**

<table>
<thead>
<tr>
<th>Patient</th>
<th>Control Average of 1 year in clinic</th>
<th>Hospitalization Average of at least 2 weeks stabilization of pressure</th>
<th>Intensive Therapy Average of 1 week of lowest values</th>
<th>Posttherapy Average of 9 to 12 mos. in clinic</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ba</td>
<td>mm. Hg 215/138</td>
<td>mm. Hg 200/132</td>
<td>mm. Hg 194/127</td>
<td>mm. Hg 234/150</td>
</tr>
<tr>
<td>Wo</td>
<td>mm. Hg 196/126</td>
<td>mm. Hg 160/86</td>
<td>mm. Hg 152/82</td>
<td>mm. Hg 190/106</td>
</tr>
<tr>
<td>Jo</td>
<td>mm. Hg 180/118</td>
<td>mm. Hg 146/100</td>
<td>mm. Hg 150/102</td>
<td>mm. Hg 174/122</td>
</tr>
<tr>
<td>Ka</td>
<td>mm. Hg 214/142</td>
<td>mm. Hg 174/110</td>
<td>mm. Hg 170/110</td>
<td>mm. Hg 198/126</td>
</tr>
<tr>
<td>MeGo</td>
<td>mm. Hg 180/118</td>
<td>mm. Hg 190/118</td>
<td>mm. Hg 186/118</td>
<td>mm. Hg 200/124</td>
</tr>
<tr>
<td>MeGu</td>
<td>mm. Hg 200/118</td>
<td>mm. Hg 172/88</td>
<td>mm. Hg 154/80</td>
<td>mm. Hg 196/106</td>
</tr>
<tr>
<td>Sc</td>
<td>mm. Hg 200/110</td>
<td>mm. Hg 166/96</td>
<td>mm. Hg 166/94</td>
<td>mm. Hg —</td>
</tr>
<tr>
<td>Si</td>
<td>mm. Hg 242/132</td>
<td>mm. Hg 236/112</td>
<td>mm. Hg 238/118</td>
<td>mm. Hg 246/144</td>
</tr>
<tr>
<td>To</td>
<td>mm. Hg 200/114</td>
<td>mm. Hg 162/98</td>
<td>mm. Hg 164/94</td>
<td>mm. Hg 200/112</td>
</tr>
</tbody>
</table>
The average pressure during the month of lowest values observed during therapy was recorded. The interval between beginning of therapy and the attainment of these lowest values ranged from 1 to 9 months. Following discontinuance of therapy the patients were only observed in the clinic. The average pressure during the subsequent 6 to 12 months is also recorded.

**RESULTS**

In the hospitalized group, the pressure, as averaged here, was substantially lower during therapy than during the pretherapy period in 6 out of 9 patients, the average difference in these 6 patients being -39 and -28 mm. Hg in systolic and diastolic pressure, respectively (table 1). In 2 patients, the diastolic pressure decreased to below 90 mm. Hg. In all patients, however, the decrement in pressure had occurred predominantly in the last 2 weeks of stabilization in the hospital, and was apparently not related to therapy with the "electron gun." After cessation of therapy and return to outpatient status, the pressure returned to the control level in all patients, showing that the effects of hospitalization were transient.

In the outpatient group, the pressure decreased, as between the control level and period of therapy, in 15 out of 31 patients, the average decrease in these 15 patients being -36 and -27 mm. Hg in systolic and diastolic pressure, respectively. In 8 of these 15 patients the diastolic pressure decreased to below 90 mm. Hg. After cessation of therapy, the average pressure during a period ranging from 6 to 12 months approached control levels. Hence it, might be inferred, subject to the qualifications stated below, that intensive therapy of our patients not subject to hospitalization had reduced pressure in nearly 50 per cent of the patients, but without permanent effects, since the pressure returned to control levels after therapy was discontinued.

In view of the behavior of the hospitalized group, however, it must further be inferred that hospitalization (for a period which varied with different patients) proved as effective as intensive therapy with the "electron gun."

It is equally significant, in the general problem of the treatment of the hypertensive patient, to note that during intensive therapy all patients reported substantial subjective improvement with respect to headache, fatigue, dizziness, nervousness, and chest pain. Several patients who had been partially incapacitated were enabled to resume normal activities. The psychologic impact of intensive therapy on our patients was shown by the fact that, so long as therapy was continued, all patients reported to the clinic regularly twice a week, some for as long as 14 months, and sometimes despite the considerable inconvenience of traveling long distances and being incommoded in their daily occupations. Several of them warmly recommended the therapy to their friends.
DISCUSSION

Four points emerge from this study. The first is the demonstration that a therapeutic regimen calculated to be dramatically impressive, but otherwise possessing no known physiologic action, can reduce blood pressure in a substantial fraction of clinic patients while maintaining ambulatory status and regular daily duties. The extent of reduction was, as might be anticipated, variable, but any discussion as to what constitutes a “significant” reduction must at the present time be based on arbitrary definition rather than physiologically reliable criteria, and the qualitative fact is the only one needing emphasis here. The success of this regimen emphasizes that reduction of blood pressure in association with any therapy, especially when the therapy is coupled with effective transference to physician and nurse, does not necessarily demonstrate a specific action.

Secondly, our observations on hospitalized patients show again, as we have previously emphasized, that the circumstance of hospitalization is effective in numerous patients, perhaps in the majority, in reducing pressure. Beyond this qualitative fact, our data show that an apparently minimal pressure may be attained in some patients after 2 to 4 weeks of hospitalization, but may not be attained in others until about 12 weeks. This fact evokes caution in the interpretation of therapeutic measures instituted in hospitalized patients after only 2 or 3 weeks of hospitalization. That we failed to reduce pressure to a further extent by intensive therapy with the “electron gun” after prolonged hospitalization suggests, though it does not prove, that hospitalization alone had reduced pressure as much as was to be expected from assurance and transference alone.

Thirdly, the pressure in outpatient and hospitalized patients returned within 8 weeks or less to control levels, showing that in neither instance had anything more than a transient effect on pressure been achieved.

Lastly, in both groups, intensive therapy and reassurance again proved their effectiveness in relieving subjective symptoms and promoting psychic and physical rehabilitation: in this respect one cannot overemphasize the importance of the “enthusiastic treatment of the worried patient,” to use Ayman’s phrase.

In order to compare blood pressure during various phases of this study it was necessary arbitrarily to select some average value over a period of 1 week or longer during which the pressure appeared to be relatively constant. However, the variability of pressure in all circumstances, including these so-called periods of stabilization, introduces an unpredictable element. In some patients during hospitalization alone, or during intensive therapy with or without hospitalization, the pressure appeared to stabilize in 3 weeks, while others required as long as 9 months. In face of this variability we cannot exclude the possibility that in some patients decreases in pressure not causally related to therapy may have occurred coincidentally with therapy. In any case, we have no reason to suspect that the observed reduction in pressure reflects any alteration in the basic and unknown process or processes underlying the hypertensive state.

The foregoing statements make no commitment with respect to the presumed prophylactic or therapeutic value of a reduction of pressure per se in essential hypertension, a thesis defended by many investigators in this field. Nor was this study designed to assess the effect of reassurance therapy on the natural history of the disease.

SUMMARY

The effects of intensive reassurance coupled with a dramatic mechanical but physiologically innocuous device on blood pressure and subjective symptoms were evaluated in 31 patients with benign hypertensive disease.

In 6 out of 9 patients treated in the hospital, the average decrease was 39 mm. Hg in systolic and 28 mm. Hg in diastolic pressure. In 2 of these patients, the diastolic pressure was reduced to 90 mm. Hg or below. In 15 out of 31 patients treated in the clinic, the average decrease was 36 mm. Hg in systolic and 27 mm. Hg in diastolic pressure. In 8 of these, the diastolic pressure was reduced to or below 90 mm. Hg.

All patients were substantially improved in respect to subjective symptoms, some to the point of psychic and physical rehabilitation.
We cannot confidently affirm a causal relationship between reassurance and the observed decrease in pressure because of the uncertainties involved in the selection of data of reference, and because of the possibility that the observed decrease in pressure may represent a coincidental, transitory phase in the natural history of the disease. Our data do suggest, however, that intensive reassurance is effective in reducing pressure transiently in some patients, and that it is more often effective in relieving subjective symptoms.

The mechanical device employed in this study was designed to reinforce the effectiveness of reassurance and nonspecific medical care by a dramatic and mysterious form of treatment. To the best of our knowledge, it possessed no other physiologic effect, and it is not recommended for clinical application.

**SUMMARIO IN INTERLINGUA**

Esseva evalutate in 31 patientes con benigne morbo hypertensive le effecto exercite super le pression sanguinee e le symptomas subjective per un intense effortio a stimular le confidentia del paciente, combine con le uso de un psychologicamente impressionante sed physiologicamente innocue procedimento mechanic.

In 6 inter 9 patientes tractate al hospital, le reduction median del pression sanguinee esseva 39 mm Hg systolic e 28 mm Hg diastolic. In 2 de iste 6 patientes le pression diastolic esseva reduceite a 90 mm Hg o minus. In 15 inter 31 patientes tractate al clinica pro patientes visitante, le reduction median esseva 36 mm Hg systolic e 27 mm Hg diastolic. In 8 de iste 15 patientes le pression diastolic esseva reduceite a 90 mm Hg o minus.

Omne le patientes experientiava notabile meliorationes quanto a lor symptomas subjective. In certe casos iste melioration amontava al rehabilitation psychic e physic.

Nos non pote asserer de manera categoric que il habeva un relation causal inter le stimulation del confidentia del patientes e le observate reduction del pression sanguinee. Pro un tal assertione nimis grande incertitudes esseva involvite in le selection del datos de referentia. Il etiam existe le possibilitate que le observate reduction del pression sanguinee representava un transiente phase coincidente in le historia natural del morbo. Il pare, nonobstante, que nostre observationes significa que le stimulation del confidentia del patientes es efficace in effectuar un reduction transiente del pression sanguinee in certe patientes e que illo es plus generalmente efficace in effectuar un alleviation del symptomas subjective.

Le procedimento mechanic que esseva usate in iste studio habeva le function de reinforzar le efficacia del stimulation del confidentia del patientes (e del non-specific mesuras medical). A parte le facto que le patientes videva in ille procedimento un impressionante e mysteriose forma de therapia, le procedimento per se habeva nulle effecto physiologic, e illo non es recommendate pro futur applicationes clinic.

**REFERENCES**


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