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Hypertension

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I. CASE REPORT

HYPERTENSION

The case is that of a white male, 62 years of age, admitted to the University Hospitals 9-20-33 and expired 11-10-33 (51 days).

Onset - Attack of Decompensation

1928 (Winter) - Became heart conscious. Observed a "grinding noise" in heart. During this year, had attack, lasting 2 weeks, consisting of dyspnea, orthopnea, swelling of feet and enlargement of abdomen. Swelling of the feet disappeared under care of physician.

5-Yr. Interval

4- -33 - In interval, patient unable to work. Short of breath, weak, had insomnia at night and attacks of orthopnea. Dull pain with occasional "sticking" pains in region of heart. Pain did not radiate, came on irregularly and had no relation to exertion. Had nosebleeds about two or three times a year. At times, lost about half-pint of blood. During this month, had another attack, consisting of dyspnea and orthopnea with edema. Attack again disappeared in approximately 10 days under treatment.

Decompensation

9-1-33 - Feet began to swell and dyspnea and orthopnea became more marked. Shortly after onset, there was a period of remission. Symptoms recurred and progressively became worse.

Past History

Had typhoid, scarlet fever and malaria while a young man, pneumonia 4 times. At age of 22, had rheumatism with simultaneous involvement of all the joints below the knee. Joints swollen and painful. Occasionally had headaches, vertigo and syncope. Right eye blind due to an old injury. Some difficulty in starting urine and stream is small.

Past Treatment

Has been on digitalis since onset of original attack of dyspnea 5 years previous to admission.

Decompensated Hypertensive Heart

9-20-33 - Admitted. Physical Examination: Patient dyspneic, propped up in bed. Head and neck - Displacement of the lens of right eye due to old injury. Lungs - dullness over both bases, numerous rales (especially in bases). Heart - pulse 42, no pulse deficit, blood pressure 170/70; pulse bigeminus; diffuse precordial impulse; enlargement of heart to axillary line on left; loud systolic murmur heard best at apex and along left border of sternum. Abdomen - definite ascites evidenced by distension of abdomen, dullness and fluid wave; liver is below costal margin for distance of 2 fingerbreadths; spleen not palpable. Genitalia - marked edema. Extremities - marked edema with erythematous lesions of the skin over the edematous portions. Rectal - negative except for very slightly enlarged prostate. Laboratory: Urine - light cloud of albumen, occasional wbc's, specific gravity 1.020. Blood - Hb. 64%, wbc's 8,100, normal differential.

X-ray

9-21-33 - 6 Ft. Heart, Esophagogram: Marked enlargement of heart. Right border cannot be clearly made out because of considerable amount of fluid at right base. Left ventricle considerably enlarged, but there is also some dilation of the right side. Esophagus displaced in region of left atrium. Appearance would suggest an aortic or hypertension type of heart in the 3rd stage with marked dilation of the right side as well. Possibility of an organic mitral disease cannot be excluded but findings are consistent with a relative insufficiency of the mitral valve.

Electrocardiogram

40 normal beats, 40 ventricular extrasystoles; auricular fibrillation, pulsus bigeminus, has tendency to right axis deviation. Dermatological examination for dermatitis of legs and small lesion on right side of cheek - dermatitis of legs and basal cell carcinoma of cheek. Ophthalmological

examination - right eye - lens is dislocated downward and laterally due to an old injury, fundus cannot be seen except extreme periphery above and nasally; left eye - marked edema of retina, vessels tortuous, widened light reflex, variation in caliber of arteries, right-angled A-V crossings, no hemorrhages or exudates, normal disc.

Mental Signs

9-30-33 - Placed on digitalis on admission but this is discontinued because of low pulse rate. Urine - 1 to 2+ albumen, specific gravity 1.014 to 1.028. Patient disoriented frequently and has delusions. Becomes extremely dyspneic at times and is cyanotic.

Pleural Effusion

10-11-33 - Condition about same. Some diuresis obtained with the use of salyrgan and ammonium nitrate. Friction rub present about 1½ inches outside the right nipple line. Temperature 102. Thoracentesis of right chest, 450 cc. fluid obtained. Culture of fluid shows presence of staphylococcus aureus and occasional gram+ rod.

P.S.P. Pulmonary Infarction

10-12-33 - P.S.P. - 65% return. Bloody sputum. Probably has pulmonary infarction.

10-14-33 - urine - 20 to 30 rbc's per high power field. Salyrgan discontinued. Tincture digitalis lcc., twice a day, again started.

10-26-33 - Hb. 65%. Urine continues to show from 1 to 2+ albumen, specific gravity ranging from 1.022 to 1.032, rbc's still present. Still hyspneic. Edema is somewhat diminished but not a great deal.

10-29-33 - Thoracentesis of right chest, 1500 cc. fluid obtained. Edema increasing.

Worse

10-31-33 - Condition worse. Patient drowsy, listless, dyspneic. Color is poor.

11-8-33 - Confused. Pulse irregular. Extremities more edematous and cold. More dyspneic.

Bloody Sputum

11-7-33 - Bloody sputum. Complains of pain in chest. Thoracentesis, 1200 cc. without much relief of dyspnea.

11-10-33 - Cyanosis more marked. Pulse weak and irregular. 12:45 P.M. - Expired.

Autopsy

Anasarca

The body is that of a well-developed but poorly nourished, white male, 62 years of age, measuring 170 cm. in length and weighing approximately 150 lbs. Rigor is not present. Hypostasis is (marked) purplish and posterior. There is grade III edema throughout the legs, extending up in the lower part of the abdomen. There is some edema of the neck and arms. The finger-nails and lips are cyanotic. No jaundice. There is a right corneal scar and the lens is opaque. The left pupil measures 5 mm. in diameter. There are red, edematous patches over the anterior surface of the tibiae. There is a small, decubitus ulcer over the sacrum. Over both elbows, there are excoriations and small ulcerations said to be due to rubbing on the bed-clothing. Over the upper part of the back and shoulders, numerous dark blotchy areas are present probably due to hypostasis. Subcutaneous fat measures about 12 mm. in thickness. Below the right eye there is a small circular ulcer of the skin.

Ascites

The Peritoneal Cavity contains about 1200 cc. of straw-colored fluid. No unusual adhesions present. The fluid is clear and contains no fibrin. The appendix hangs free and shows no infection.

Blood Tinged Pleural Effusion

The pleural cavities contain about 1500 cc. of slightly blood tinged fluid on the right side and about 500 cc. of clear yellowish fluid on the left. The left side shows some adhesions along the interlobar fissure. There are a few adhesions posteriorly in the right ap-

per lobe. The pericardial sac is distended with fluid and contains about 300 cc. of clear straw-colored material.

Cardiac Hypertrophy and Dilation

The heart weighs 650 grams. All of the chambers are very much dilated. There is hypertrophy of the left ventricle. The musculature is of good color and shows no fibrosis or infarctions at any point. The mural endocardium is smooth. The valves are well formed and show no recent or old endocarditis or distortion. Both atrio-ventricular openings are widely dilated and readily admit 3 fingers. The root of the aorta is extensively calcified, appears to be slightly dilated. The coronaries on both sides are sclerotic to about Grade II. There is no thrombosis or complete obstruction found in either the main or smaller branches.

Pulmonary Embolism and Infarction

The right lung weighs 950 grams, the left 500. There is extensive collapse of the posterior portions of the lower lobes on both sides (probably collapse due to fluid and enlarged heart). On the right side, there are large, irregular, firm masses present within the lung parenchyma, particularly in the lower lobe. One of these measures about 8 cm. in diameter. The parenchyma of the left lung is free of nodules. Dissection of the pulmonary artery shows no significant dilation. There are a few irregular plaques or atheromatous material in both the larger and smaller branches. Numerous emboli are present on both sides. On the left side, all are small and situated deep within the lung parenchyma and the smaller branches. On the right side, there is a large embolus obliterating most of the vessels to the lower lobe and there is a moderate size embolus in the branches of the right upper lobe. Cross section of the lung and hard masses shows heavy infiltration with blood.

Fibrotic Spleen

The spleen weighs 200 grams, is very firm. On cross section, no pulp can be scraped away. The cut surface appears fibrotic.

Acute and Chronic Congestion

The liver weighs 1750 grams, feels hard. It cuts with increased resistance. On the cut surface, the lobulations cannot be seen and the surface is irregularly mottled with a recent passive congestion which obscures all other findings which may be present.

Negative

The gall-bladder is thin walled. The mucosa is smooth. No stones are present.

The Gastro-intestinal tract: the esophagus, stomach and duodenum show no ulcers or polyps. No varicose veins are present. The small bowel is somewhat thick walled, appears a little edematous. In the colon, one small diverticulum is found and no other change except some edema of the mucous membrane.

The pancreas shows no fibrosis, tumors or cysts.

Adenomas

The adrenals show small cortical adenomas on both sides. No degeneration or hemorrhage.

Arteriolar and Arteriosclerosis

Each of the kidneys weighs 170 grams. The capsules strip quite easily. The exposed surface of the kidney is extensively pitted with fine regular pitting and coarse irregular scars. The pelvic fat is increased in amount. The kidney substance is somewhat decreased. The vessels in the hilus of the kidney are extensively sclerotic. The cut ends stand open and do not collapse. The ureters are not inflamed or dilated.

The bladder shows a slight amount of trabeculation. There is some pouching of the bladder wall behind the trigone.

The prostate is enlarged to about Grade I in both lateral lobes.

Femoral Thrombosis

The femoral vein is milked upward on both sides. On the right side, two thrombi are detached which measure about 1 cm. in diameter and about 3 cm. in length. There are a few small thrombi present in the prostatic plexus.

Diagnoses

1. Hypertension.
2. Cardiac hypertrophy and dilation.
3. Myocardial failure.
4. Arteriosclerosis, generalized.
5. Coronary sclerosis, Grade II.
6. Pleural effusion.
7. Pericardial effusion.
8. Anasarca.
9. Ascites.
10. Pulmonary embolism.
11. Pulmonary infarction.
12. Chronic passive congestion of liver, spleen and bowel.
13. Diverticulum of colon.
14. Arteriolar and arteriosclerosis of kidneys.
15. Prostatic hypertrophy.
16. Thrombosis of femoral and prostatic veins.
17. Basal cell carcinoma of face.

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The large percentage of all deaths caused by hypertension is well known. In spite of this obvious importance of the subject, one is still surprised at the large number of publications dealing with blood pressure. From January to June 1933, 112 articles are listed in the Index Medicus on high blood pressure alone. In preceding years, there is about an equal number. One of the interesting problems, among others, dealt with in this literature is the incidence and significance of "sub-clinical" elevations of the blood pressure. What is the normal variation of blood pressure according to age and sex; the significance of minor elevations; the prognosis in such cases; and, finally, what tests can be used in examining the potential hypertensive?

Normal or Physiologic Variations in Blood Pressure

The lability of blood pressure is known. That anger, for instance, raises the pressure is known even to lay people and the warm unchanging climates were recommended to hypertensives by the old practitioners; The influence of these variations on diagnosis is of course obvious. An accurate study of this "rhythm" cannot be done in clinic or hospital study. Brown (Mayo Clinic) developed the novel idea of patients taking their own blood

pressures several times a day over a long period of time. He reported the results in an individual who followed his own pressure for over 3 years. Effects of changes of diet, environment, weather and other features were noted. Several significant features were brought out. (1) There was a seasonal lowering of the blood pressure during the summer of each year. (2) A definite difference in pressure during the days of the week was present. On Sunday, the pressure rose, and through Monday it fell to a constant level where it remained until the subsequent week-end. (3) A direct emotional relationship existed. Sunday was the day of unrest and uneasiness. Excitement, elation, etc. brought on an evening rise. Regular work, routine, monotony, boredom and depression were associated with lowered pressures. (4) Various diets had no effect. (5) Potassium sulphocyanate lowered and stabilized the pressure, possibly because of a steady-ing effect on the vasomotor mechanism.

The Incidence of Elevated Blood Pressure

Excellent collections of data of this type are now available. Various groupings can be found: age, sex, students, insurance applicants or hospital admissions. A composite or summarizing table of these groups is difficult because of these differences.

Normal Young Adults

<u>Author</u>	<u>Case Type</u>	<u>Men</u>		<u>Women</u>			<u>Combined</u>			
		<u>No.</u>	Over 130 Syst.	Over 140 Syst.	<u>No.</u>	Over 130 Syst.	Over 140 Syst.	<u>No.</u>	Over 130 Syst.	Over 140 Syst.
Alvarez	Student	6,000	45%	12%	8,934	12%	2%	-	-	-
Diehl & Sutherland	Student 1922	1,686	41%	16%	-	-	-	-	-	-
	Student 1923-24	3,436	26%	9%	-	-	-	-	-	-
Treadgood	Aviation Students	2,497	-	6%	-	-	-	-	-	-
Palmer	Students	-	-	-	-	-	-	3,598	-	10%
Wienrich	Normals	2,200	11%	-	-	-	-	-	-	-

Old Age

Kachdries 2,527 cases - "normals"

<u>Age</u>	<u>Men</u>	<u>Women</u>		
Average	Variation	Average	Variation	
50-55	123/69	10/3	124/74	10/5
56-60	125/71	10/7	129/72	10/7
61-65	130/71	8/3	132/77	8/7
66-70	141/79	6/2	140/74	6/5

Author notes definite hypotension in cases of achlorhydria, gastritis, gastric ptosis, malnutrition and debility due to gastric carcinoma.

Advanced old age: (75 to 100 Yrs.)

700 cases - "normal". (Willius)

Over 140 systolic	-	75%
Over 200 systolic	-	10%
Over 90 diastolic	-	40%
Over 110 diastolic	-	11%

temporary fluctuation due to the environment.

Treadgold in 100 student cases with systolic pressures over 140 and otherwise normal found in all cases a drop in the subsequent 4 years to below 130.

Significance of Slight Elevations of Blood Pressure

Diehl and Sutherland found in their 1922 group of students a definitely higher incidence of hypertension than in the 1923-24 group. In the later cases, the blood pressure was checked several times and adequate rest periods were given. In the 1922 group, such precautions were not followed out in all cases. Apparently the hypertension in some cases is a normal

Palmer examined 49 men ten years after an initial examination which showed a systolic pressure over 140. 22.4% of these 49 men continued to show the elevated pressure. Of 54 cases with a pressure over 140 followed for 1 or more years, 21.5% had a persistence of the elevated pressure.

Insurance Figures

Against this rather favorable outlook are the statistics of insurance companies.

The Northwestern Mutual Life Insurance Company estimated risk as follows:

Increased Pressure	Extra Mortality
+10 - +24	69%
+25 - +34	100%
+35 - +49	145%

The New York Life Insurance Company has the following estimate:

Increased Pressure	Extra Mortality
+10 - +25	46%
+26 - +35	88%
+36 - +50	148%

The Equitable Life Insurance Society gave insurance under an extra premium because of hypertension. The blood pressure was as follows:

Age	Blood Pressure
15--229	145 or more
30 - 44	150 or more
45 - 53	155 or more
54 - 65	160 or more

The death rate was as follows:

Age	Actual Death	Expected Death
15 - 39	32	18.5
40 - 49	74	34.08
50 and over	96	54.54
	202	107.12

End Results in True Hypertension

Most in 82 patients followed for 6 years, all of whom had initial pressures of 200 or over, found the following:

	Living	% Dead
After 1 year	75	7.5
After 2 years	65	16
After 3 years	49	40
After 4 years	39	52
After 5 years	28	66
After 6 years	24	70

Blackford and Wilkinson in a group with an initial pressure over 175 followed the patients for 10 years. In 202 patients, 50% were dead at the end of 8 years. The mortality in females was 42%, in males 79%. In 101 patients followed 10 years, the gross mortality was 60%. The mortality in females was 50% and in males 82%. Moreover, of the women surviving, 59% are relatively symptom-free while only 24% of the men are in a similar condition. Only 2 instances of recovery? were noted in the entire group. Note: Male and female difference.

Postmortem Data1. (Murphy, Grill, Pessin and Moxon)
Cause of death - 375 cases.

Heart disease	- 50%
Renal failure	- 10
Vascular accident-	13
Infections	- 14
Miscellaneous	- 12

Age of death - 375 cases.

10 - 20	-- .8%
21 - 40	- 6.4
41 - 60	- 27.3
61 - 80	- 48.1
81 -100	- 9.4
Unknown	- 8.0

Heart Weights - 375 cases

Normal	- 18.13%
400 - 600	- 47.74
700 - 800	- 17.87
800 -1000	- 4.55
Not recorded	- 11.73

2. Bell and Clawson - 420 cases

Ratio male to female, 1.4 : 1
(See Wetherby's ratio in life).

Cause of death

Myocardial failure	-	45%
Cerebral Accident	-	19
Coronary Sclerosis	-	16
Renal failure	-	9
Miscellaneous	-	11

Impressions

1. A short review of some of the numerous publications on hypertension were studied to prepare a background for the analysis of the papers by Dr. Wetherby which are to follow.

2. A definite lability of blood pressure exists in normal individuals. Some of the results recorded in the literature manifest the influences of this factor. One change noted by several and clearly brought out by Brown is the lowering of the pressure by a warm climate.

3. The incidence of elevated pressures (over 140) in large groups of young normal individuals varies from 6% to 16%. Recheck in the next few years in these cases shows a marked lowering of this incidence (initial pressure erroneous due to environment?).

4. Long time follow-up studies show that only about 20% of these so-called hypertensions in young individuals persist.

5. In "normal" men and women of 50 to 75 years of age, there is an average pressure from 123 to 141 and the average advances with the age.

6. In people over 75, the systolic pressure is over 140 in 75% of the cases and the diastolic is over 90 in 40%.

7. Considering all age groups, the insurance companies estimate a definite increased risk in individuals with increased pressures. For an increase of

+10 to +25, the increased risk is 46% to 65%. Likewise, the actual deaths in these groups is almost twice the calculated expected deaths.

8. In hypertension with a pressure over 200, 70% of 82 cases died in 6 years. In another group of 200 cases with a pressure over 175, 50% were dead in 8 years. In a similar group, (100 cases), 60% were dead in 10 years.

9. The mortality in the last group cited, among women, was 50% and among men 82%.

10. In autopsy material, the male-female ratio is 1.4:1.

11. The cause of death is about 50% heart failure, 20% cerebral accidents, 15% coronary sclerosis, 10% renal failure and 10% miscellaneous.

III. BLOOD PRESSURE STUDY

A Study of Blood Pressures in 15,000 Individuals.

With the impressions obtained from a short review of the literature, the work of Macnider Wetherby proves extremely interesting. The results of the study on 5,540 individuals was published along with the author's impressions in December 1932. The data on the remainder of the group (10,000 more cases) has now been completed (not yet published). The following charts are based on the last group of cases.

CHART I.

THE PERCENTAGE OF CASES ABOVE CERTAIN BLOOD PRESSURE LEVELS FOR
(10,000) MEN AND WOMEN IN THE TOTAL OUT-PATIENT GROUP

SYSTOLIC BLOOD PRESSURE

% over	15-19 years		20-29 years		30-39 years		40-49 years		50-59 years		60-69 years		70 years -	
	Men	Women	Men	Women	Men	Women	Men	Women	Men	Women	Men	Women	Men	Women
140 mm.	5.58	6.15	9.33	5.76	10.50	13.69	18.75	37.90	29.31	57.90	48.90	75.75	59.97	77.18
150 mm.	2.02	1.91	2.81	2.21	5.31	5.32	10.43	24.40	16.05	41.62	33.18	57.50	42.40	65.37
160 mm.	0.76	0.40	1.16	0.96	1.90	2.05	6.20	15.40	12.74	27.51	24.45	48.00	30.69	56.71
180 mm.	0.25	0.13	0.29	0.19	0.54	0.59	2.97	6.50	4.29	13.00	11.06	29.50	14.44	31.60
200 mm.	----	0.13	----	0.06	----	0.25	0.87	3.20	1.64	6.78	6.21	14.75	5.85	13.38

DIASTOLIC BLOOD PRESSURE

90 mm.	10.00	9.06	15.47	10.06	22.53	23.31	28.76	38.80	31.33	50.47	39.60	57.00	39.84	54.32
100 mm.	-----	0.96	1.65	1.64	4.23	6.13	9.83	14.70	12.76	24.69	18.44	31.75	20.31	33.85

Note: Routine blood pressure determinations were made on all patients admitted to Out-Patient Department (Admission Clinic). This includes practically all who came for any reason during the period of report. Charts through courtesy of Macnider Wetherby, M.D., Admission Officer, Minnesota General Hospital.

CHART II.

<u>AGE</u>	<u>MEN</u>		<u>WOMEN</u>	
	Pressure under 150	Pressure 150 or over	Pressure under 150	Pressure 150 or over
15 - 19	385	8	710	18
20 - 29	977	50	1,473	47
30 - 39	677	55	1,055	104
40 - 49	687	116	737	263
50 - 59	494	109	405	332
60 - 69	329	186	160	240
70 -	145	111	41	86
	<hr/>	<hr/>	<hr/>	<hr/>
	3,694	635	4,581	1,090 = 10,000

CHART III.

SYSTOLIC BLOOD PRESSURE IN THE TOTAL MATERIAL

Age Group Years	<u>MEN</u>		<u>WOMEN</u>	
	No. of Cases	Mean Pressure	No. of Cases	Mean Pressure
15 - 19	393	118.13	728	119.01
20 - 29	1027	121.56	1520	118.44
30 - 39	732	122.53	1159	123.30
40 - 49	803	126.25	1000	136.75
50 - 59	603	131.49	737	148.37
60 - 69	515	143.13	400	161.83
70 -	256	146.20	127	164.51

DIASTOLIC BLOOD PRESSURE IN THE TOTAL MATERIAL

15 - 19	393	75.40	728	76.13
20 - 29	1027	79.25	1520	76.25
30 - 39	732	80.77	1159	80.98
40 - 49	803	83.01	1000	86.45
50 - 59	603	84.47	737	90.13
60 - 69	515	86.78	400	92.95
70 -	256	87.04	127	91.72

CHART IV.

SYSTOLIC BLOOD PRESSURE OF INDIVIDUALS WITH PRESSURE OF 150 MM. HG. OR MORE

Age Group Years	<u>MEN</u>		<u>WOMEN</u>	
	No. of Cases	Mean Pressure	No. of Cases	Mean Pressure
15 - 19	8	160.25	14	157.42
20 - 29	29	158.55	34	161.97
30 - 39	40	159.47	73	161.97
40 - 49	84	170.50	245	171.27
50 - 59	98	173.91	307	174.53
60 - 69	171	175.70	230	184.67
70 -	108	173.50	84	181.75

DIASTOLIC BLOOD PRESSURE OF INDIVIDUALS WITH PRESSURE OF 100 MM. HG. OR MORE

20 - 29	27	106.88	25	107.12
30 - 39	31	109.54	71	106.18
40 - 49	78	110.12	147	111.02
50 - 59	78	110.43	183	110.20
60 - 69	95	112.22	127	111.64
70 -	52	112.13	43	110.46

The author brings out in the discussion of this data the following points:

1. In both men and women, there is a steady rise of pressure from one age group to another.

2. From 15 to 40, the change is slight. Between 30 and 40, there is a sudden rise in the pressure of women which brings the average above that of men. This average is maintained.

3. The rise in pressure in men occurs about one decade later.

4. There is a markedly greater incidence of increased blood pressure among women than among men. (See tables).

5. This should not be interpreted to mean an increased incidence of clinical hypertension. It may represent only an increased lability of pressure.

6. Chronic hypertension in its course and outcome is a milder disease among women than among men. Incidence is about 2 to 1 in favor of women and the death rate is about 1 to 1.

7. No correlation between the increased pressure and menopause was found.

IV. VASOMOTOR RESPONSES TO COLD

Two extremely interesting papers dealing with what can be interpreted as a test for the potential hypertensive or pre-hypertensive stage are reported by Hines and Brown (Aug. '33) and Briggs and Oerting (July '33). First paper given priority by second.

The "cold stimulation test" consists in submerging the patient's hand and arm for 60 seconds in ice water (4 to 5° C.) after he has rested and his blood pressure has stabilized itself at a basal level. The blood pressure is recorded from the opposite arm at 30 sec., 60 sec., and then every 2 minutes until the pressure returns to its previous basal level. The height of the

reaction and its duration form a curve which represents the patient's response.

Results:

1. (Hines and Brown)

<u>Type</u>	<u>No.</u>	<u>Age</u>	Systolic Rise	Diastolic Rise
			(MM) (HG)	(MM) (HG)
Normal	69	15-55	8.62	8.14
Hyper-reactive "normal"	18	17-40	29.33	23.33
Hyper-tension:				
Organic	29	24-64	36.68	24.38
Pre-Organic	21	24-64	37.15	25.04
Arterio-sclerosis with hypertension	6	68-91	35.00	20.08
Various diseases except vascular	41	18-45	8.15	7.27
Vascular diseases without hypertension	26	22-82	9.77	8.47

2. (Briggs and Oerting)

<u>Age</u>	<u>Men</u>		<u>Hypertension</u>	
	<u>Normal</u> Sys.	<u>Dia.</u>	<u>Sys.</u>	<u>Dia.</u>
9-19	10	11	-	-
20-29	10	11	28	10
30-39	12	19	-	-
40-49	8	13	17	8
50-59	15	10	20	8
60-69	7	10	15	9
70-79	11	5	12	5
80-89	-	-	19	8

<u>Age</u>	<u>Women</u>		<u>Hypertension</u>	
	<u>Normal</u> <u>Sys.</u>	<u>Dia.</u>	<u>Sys.</u>	<u>Dia.</u>
9-19	-	-	-	-
20-29	9	9	-	-
30-39	11	14	12	12
40-49	7	5	21	8
50-59	7	3	18	6
60-69	9	7	17	9
70-79	10	5	9	6
80-89	-	-	9	5

The conclusions of both groups of authors may be summarized as follows:

1. Normal individuals have a specific response to the test with a rise of about 8 - 10 mm. and a rapid fall after the test.

2. Hypertensive individuals show a rise to as high as 37 mm.

3. Several apparently normal individuals give the hypertensive type of response. It is suggested that these cases may be potential hypertensives.

4. If further confirmation is made, the test might prove of value in recognition of latent or prehypertension cases.

5. The test is specific so far with the exception of syphilitics with central nervous system disease who also give a marked exaggeration of the reflex. (Briggs and Oerting).

6. In a few cases of suspected hypertension with enlarged heart but no elevated blood pressure at the time of examination, a typical hypertensive curve was obtained.

Rudolph Koucky.

V. MEETINGS

1. QUESTIONS AND ANSWERS

At a recent meeting of the Washington County Medical Society, Stillwater, Minnesota. E. Sydney Boleyn, M.D., Secretary, arranged a program of questions and answers. Each member submitted a

list of 10 questions in advance, for the speaker to answer. The following group is of special interest as it indicates what one man was thinking about:

1. Is there any relationship between calcium or phosphorus deficiency and delayed union of fractures of the long bones?

2. What is considered a good end-result in fracture of the middle third of the shaft of a long bone, especially the femur and tibia?

3. How do you explain the development of a rachitic deformity in a child under 2 with an adequate diet and a sufficient amount of cod liver oil?

4. Outline the treatment of cardiac asthma.

5. What is the best treatment for asthmatic attacks in a youngster, 5 yrs. of age, who is negative to skin tests for protein sensitivity, has no disease of the nose and throat, but has a low grade chronic bronchitis?

6. Are there any ill effects from long continued use of sodium luminal and sodium bromide in proper dosage for hypertension?

7. What is the best treatment for acute and chronic pyelonephritis?

8. What is the prognosis in low grade chronic thyroiditis?

9. Of what value is immunization against scarlet fever.

10. What is the best treatment for a nevus, either brown or red in an infant?

Other questions concerned the best hemoglobinometer, differential diagnosis of intussusception and acute gastro-enteritis, the conservative treatment of acute appendicitis, liver damage in various obstructions of the bile passages, cause and treatment of some varicelliformis, diathermy treatment

of several diseases, advisability of removing pigmented moles, treatment of inoperable senile prostatic enlargement, value of drug therapy in hypertension, value of whooping cough and respiratory infection vaccines, use of serum in pneumonia, treatment of chronic arthritis, etc.

In the discussion which followed, it was interesting to note that apparently in private country practice the commonest conditions seen in infants are gastrointestinal upsets and upper respiratory infections; and in adults, complaints of dizziness, insomnia, gastric distress and constipation.

2. LECTURE TONIGHT

The William W. Root Alpha Omega
Alpha Lecture
Arturo Castiglioni, Professor of
History of Medicine, University
of Padua
Subject: "Magician and Leech:
The History of Magic Cures"
Thursday, November 16th, 8:00 P.M.
Anatomy Amphitheater.

3. MEETING

Date: November 9, 1933
Place: Recreation Room,
Nurses' Hall
Time: 12:15 to 1:18 P.M.
Attendance: 121
Program: Carcinoma of lung
Discussion: L. G. Rigler
R. W. Koucky
E. J. Simons
H. A. Carlson
Carl Rice
N. Logan Leven
W. K. Stenstrom
O. H. Wangenstein
Theme: L.G.R.: Chief x-ray findings
were those of the secondary

changes in the chest. No evidence of tumor but we could not rule it out. As we look back we might have suspected it more than we did. Films of spine show presence of erosion of pedicles very nicely. We were at a loss to explain the rarefaction but felt that there was a very definite tumor in the spinal canal.

R.W.K.: Correction page 80. Left pleural adhesions instead of "right". Dr. Vinson instead of "Vincent".

Note white collars around bronchi out to periphery. The flat, collar-like growth in the spinal canal was outside the dura. Microscopic sections of lung showed tumor cells of undifferentiated variety blocking both lymphatic and blood vessels. Sections of tumor show complete anaplasia; no tendency to form glands or alveolar structures. This type of microscopic appearance is described in tumors of the lung and is consistent with that diagnosis.

L.G.R.: Peribronchial tumor infiltration is not uncommon in various types of metastatic and primary lung lesions.

E.J.S.: Discussed the question of whether or not there has been an actual increase in lung cancer. Historical review of the disease apparently shows that it is on the increase. Charts presented to prove this point. There are some investigators, however, who disagree; majority apparently are of opinion that the condition shows real increase. Reports have been made for and against this contention. We should be on the alert about making the diagnosis. If surgery is to be successful, the diagnosis must be made before the tumor has extended or metastasis has taken place. Our case was a male of 19 who worked in an automobile body factory in Detroit. Symptoms of pain in chest developed in August and he drifted about until we saw him in November and made the diagnosis. In his occupation, he was subjected to high temperatures and a spray containing various possible irritating substances.

We are attempting to see what effect these substances have on rabbits.

H.A.C.: We attempted to group the symptoms of lung carcinoma into those which come from the tumor itself and those which are secondary and incidental. In making a diagnosis of lung cancer, it is well to remember that it may mimic any definite lung condition. The onset varies and many start with minor complaints. Cough, expectoration, dyspnea, pain and hemoptysis should make us think of lung cancer, especially if the patient is in the cancer age. In our series, the majority had metastasis when first seen. Some had symptoms of brain tumor. It is well known that patients have had the brain operated on for this condition. If the condition is first seen in bone the question of endothelioma may be brought up. Dr. Carlson then reviewed cases and showed lantern slides reported in his article. In some instances, it may be very difficult to decide as to whether the primary tumor is lung or kidney. Filling defects of lipiodol may be due to other conditions than tumors. Attention was called to one case in which an original diagnosis of benign metaplasia had been made; later, he was found to have bilateral squamous carcinoma of the bronchi. In one case, Dr. Graham decided to do a cauterary pneumectomy. Carcinoma was drained in this way. Patient improved for a time but finally died. Opportunity was given in this case to check the effects of the implantation of radium. Carcinoma was healed at site but beyond this it continued to grow. This is hopeful. A diagram was then shown, showing the usual sites of metastasis. In one patient, the tumor was an accidental finding. In one, a supraclavicular node was removed before death and no other metastasis was found. In one case treated by Dr. Arbuckle by cauterization through the bronchoscope and also by x-ray treatment, the patient (physician) lived $4\frac{1}{2}$ years after the diagnosis was made.

C.R.: When I was studying routine blocks from the thyroid gland, I ran on to some metastatic tumors which had not

been suspected. It is interesting to note that 2 of 9 came from bronchogenic carcinoma. This seems to be a rather high incidence from this source.

N.L.L.: As the bronchoscope is the only certain method of diagnosis we should remember that not everything that looks like carcinoma is carcinoma. We have had several cases which illustrate this point. One, in a boy, in which a biopsy was first thought to be malignant and later benign. The follow-up indicated that the condition was probably a benign metaplasia. An x-ray, taken this morning, showed exactly the same picture as of two years ago. Another man, age 40, came to the clinic 6 months after onset of pain in the chest following a respiratory infection. Bronchoscopic examination showed infiltrated, ulcerated growth in right upper bronchus. We suspected carcinoma. Report, however, came back inflammation. Patient was sent home; later on, he coughed up a calculus and since then has been well.

W.K.S.: Some investigators have been enthusiastic about the possibilities of x-ray therapy. We have no reason to feel that way. At the recent Congress of Radiology, a report of 27 cases was reviewed; 5 of them had been well for a considerable length of time. The pathologists in going over the slides for the second time came to the conclusion that these tumors were adenomas and not true carcinomas. We have had some 20 cases of carcinoma of lung treated here with x-ray. Three or four of the cases diagnosed as carcinoma showed very little change in their condition. We thought that this indicated the possibility of an incorrect diagnosis. We have had a few that lived about 3 months after treatment; the longest with a heavy dose, lived 6 months. One is now 7 months since we have last heard from him; he may be dead. In one case diagnosed as pulmonary carcinoma, the lesion completely disappeared under therapy which was suspicious that it was not this form of growth.

O.H.W.: We have a patient in the hospital now who illustrates some of the difficulties in making a diagnosis of this condition. This child had pneumonia last January and has been sick ever since. Physical examination showed evidence of bronchostenosis. A biopsy of the chest fluid was not helpful. We hesitate to go in in the absence of more conclusive data. On the other hand, we would dislike to overlook a cancer of the lung which might be treated at this stage.

Gertrude Gunn
Record Librarian

N E X T W E E K

SUBJECT TO BE ANNOUNCED