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A CLINICAL STUDY OF THE TOXICITY OF PROPYL ETHYL GL!!CIDAM! DE IN HUMANS

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SUBMITTED IN PARTIAL FULFILLMENT FOR THE DEGREE OF DOCTOR OF MEDICINE

UNIVERSITY OF NEBRASKA COLLEGE OF MEDICINE

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A CLINICAL STUDY OF THE TOXICITY OF PROPYL ETHYL GLYCIDARIDE (P.E.G.) IN HUMANS

This study was to evaluate the clinical toxicity of a new drug reported to have a central depressant action in animals similar to the action of the short acting barbiturates. This work was done basically to evaluate any thricity that this drug has upon the human by giving relatively large doses of the drug to patients over a period of thirty days. were selected at random at the Nebraska Mental Hospital, Lincoln, Nebraska and subjected to a battery of laboratory tests; urinalysis, complete blood count, phenolsulfonphthalein excretion, cephalin floccula-tion, and fasting blood sugar. These patients were then given 1600 mg. of P.E.G. daily in divided doses for a period of fourteen days. At the end of this time the patients were resubjected to the same battery of laboratory tests and asked a list of questions in order to ascertain any subjective signs of toxicity. Patients were then given P.E.G. for another fourteen days and the previous laboratory tests and questions were repeated. In order to keep laboratory error to a minimum, all the tests were run by the same technician, as were all the patient interviews.

During the thirty day period that this test was being run, the doctors, nurses, and orderlies were instructed to record and report any signs or symptoms of toxicity shown by these patients. As the result of this study, no subjective nor objective evidence of toxicity to P.E.G. was found.

On a search of the literature, nothing could be found about the use of P.E.G. upon humans, however one report of toxicity of this drug on experimental animals was located.

Warren, Thompson, and Werner (1) found the LD 50 of P.E.G. to be eleven times that of pentobarbital and seven times that of ethylisoamylbarbituric acid when given intravenously in rabbits. These investi-gators found that acute toxicity when given orally in rats was greater than either pentobarbital or 2-

Monobromoisovalerylurea

(Bromural) as shown in Table 1.

Drug	Acute	LD 50
2-Ethyl-3-propylglycidamide	1.36	+ Ggm - 0.09
Pentobarbita]	0.129	+ 0.033
2-Monobromoisovale*ylurea	1.10	± 0.25

Warren and his group performed chronic toxicity studies of P.E.G. in dogs, rats, and monkeys.

The dogs were fed 100 mg/Ggm./day of P.E.G. orally. An equal number of dogs were used as a central study. The drug was given to the dogs six days a week for eight weeks. At the end of the eight week period the food consumption remained normal and there were no losses in body weight. Blood counts made every two weeks were not altered by the administra ion of the drug.

Gross pathological changes were not observed when these animals were sacrificed.

"Sections of aorta, heart, lung, liver, spleen, stom ch, adrenal, small and large intestine, kidney, and urinary bladder showed no histologic changes, which could be attributed to drug administration" (1) (direct quote).

On the studies in rats, the animals were divided into three groups. The first group was a control group and the other two groups were given >0 and 200 mgm/kgm of P.E.G. respectively, six days a weekfor eight weeks.

"Signs of toxicity did not develop in either experimental group. Experimental and control animals gained in bo y weight at a similar rate. Red, white, and differential counts and hemoglobin concentrations remained in the normal range and did not differ significantly from the controls."

These men also found that a daily dose of 100mgm/kgm per day six days a week for four weeks caused no signs of toxic action of the drug in monkeys (Macaca mulatta).

Experiments:

This experiment was run on thirty patients picked at random from the Nebraska Mental Hospital, Lincoln, Nebraska.

Each patient was given a series of laboratory tests prior for use as a base line to check on the drug toxicity: Urinalysis including color, aprear-ance, specific gravity, reaction, albumin, sugar, and centrifuged microscopic examination. Complete blocd count, including hemoglopin, red, white, and differential counts. Fasting blocd sugar, cephalin flocculation, and phenolsulfonphthalein excretion tests.

Each patient was then given 1600 mgm. of P.E.G. every day for fourteen days.

The drug P.E G. - 2-Ethyl-3-propylglycidamide used in this survey has the chemical structure:

It occurs as a tasteless crystalline solid with little or no odor. One part is soluble in 95 parts of water at 30 degrees Centigrade. (1)

During this time each patient was observed for signs of toxicity, nausea, vomiting, decreased appetite, drowsiness, inco-crdination, or signs of unusual behavior. Each patient was also given a brief interview at the time the laboratory tests were run. This interview consisted of simple questions which could be answered either with a yes or no. All the questions were pointed in such a way in order to discover a subjective evidence of toxicity.

The patients were again placed on P.E.G. for another fourteen days and at the end of this time the laboratory work and interviews were repeated.

Results of Experiment:

As can be seen by the following tables of

laboratory work performed on the patients, no significant evidences of toxicity were found. Observation of the patient while under therapy produced no signs of toxicity.

In the interviews given patients, of the twentynine who completed the entire experiment, seven
thought they felt worse or that the drug had an adverse effect upon them, while six of the patients
thought the drug had a beneficial result. The other
sixteen patients stated that the drug had no effect
whatsoever on them.

PATIENT: Hattie Wollson AGE: 45 ADMITTED: 1952 WARD: 10

PREVIOUS THERAPY: Electroshock therapy.

DIAGNOSIS: Schizophrenia (affective). LENGTH OF ILLNESS: Unknown. CODE NUMBER: 000-X27

	Nov. 3, 1954	Nov. 17, 1954	Dec. 1, 1954
BLOOD PRESSURE	100/60	148/82	124/72
URINALYSIS	Test 1	Test 2	Test 3
Color	Yellow	Light Yellow	Yellow
Appearance	Slightly cloudy	Clear	Slightly Cloudy
Specific gravity	· ·	1.015	1.015
Reaction	5.5	5.5	6.0
Albumin	negat_ve	negative	trace
Sugar	negative	negative	negative
Microscopic	amorphous urates, occas_onal leucocytes	urates occasional small epi- thelial cells	4-6 leuco- cytes, 1-2 small epi- thelial cells
HEMATOLOGY	77%	85,	88%
Red Blood Count	4.08	4.59	4.38
White Blood Coun	t 8 , 150	6,500	8,650
Segments	50	52	66
Stabs	3	7	7
Eosinophils	1	0	0
Basophils	0	1	0
Lymphocytes	fijt	38	27
Monocytes	2	2	0
Blood sugar	92 mg.%	90 mg.%	100 mg.%
Cephalin floc- culation	+	<i>‡</i>	<i>‡</i>
Phenolsulfonph- thalein	14.5 27.0 41.5%	29.5 20. 49.5%	20.0 21.5 41.5%

PATIENT: Albert Willis AGE: 73 ADMITTED: 1951 WARD: 3

DIAGNOSIS: Cerebral arteriosclerosis.

PREVIOUS THERAPY: Electroshock therapy. LENGTH OF ILLNESS: Unknown C CODE NUMBER: 94x-942.X1 (306)

	Nov. 2, 1954	Nov. 16, 1954	Nov. 30,1954
BLOOD PRESSURE	150/92	184/80	180/100
URINALYSIS	Test 1	Test 2	Test 3
Color	Light amber	Yellow	Yellow
Appearance	Slightly cloudy	Clear	Slightly cloudy
Specific gravity	1.023	1.013	1.018
Reaction	5.5	6.0	6.0
Albumin	negat've	trace	negative
Sugar	negat ve	negative	negative
Microscopic	bacteria, oc- casional small epith lial cells	occasional hyaline cast, 1-2 leucocytes occasional small epithelial cells	L
HEMATOLOGY	98%	93.	86%
Red Blood Count	4.53	5.09	5.16
White Blocd Coun	t 8,550	9,800	11,350
Segments	58	44	56
Stabs	11	7	9
Eosinophils	1	0	2
Basophils	0	0	0
Lymphocytes	29	49	33
Monocytes	1	0	0
Blood sugar	81 mg. %	110 mg.	98 mg. %
Cephalin floccula	ation /	+	1
Phenolsulfonph- thalein	7.5 24.0 31.5%	27. 29.5 57.5%	26. 29.5 55.5%

PATIENT: Vera Thompson AGE: 46 ADMITTED: 1953 WARD:6 DIAGNOSIS: Schizophrenia (Paranoid).
PREVIOUS THERAPY: Electrosh ck therapy, Insulin.
LENGTH OF ILLNESS: Unknown. CODE NUMBER: 000-X24

	Nov. 5, 195 <u>4</u>	Nov. 19, 1954	Dec. 3, 1954
BLOOD PRESSURE	120/70	132/72	128/80
URINALYSIS	Test 1	Test 2	Test 3
Color	Light Yello√	Light Yellow	Light yellow
Appearance	Clear	Slightly cloudy	Slightly cloudy
Specific gravity	1.010	1.020	1.004
Reaction	6.0	7.0	5.5
Albumin	Trace	1	Trace
Sugar	Negat .ve	Negative	Negative
Microscopic	3-4 small epithelial cel	1-2 small ls epithelial cells, occasional white blood cell	occasional white blood cell, amorphous urates
HEMATOLOGY	80%	80%	90%
Red Blood Count	3.97	3.68	4.26
White Blood Coun	t 9,650	7,950	4.750
Segments	41	59	64
Stabs	17	12	6
Eosinophils	1	2	1
Basophils	0	0	0
Lymphocytes	43	26	29
Monocytes	8	1	0
Blood sugar	94 mg. 4	92 mg.	104 mg. ,
Cephalin floccul	ation Negative	Negative	+
Phenolsulfonph- thalein	60.0 27. 87.0%	40 32 72%	54 28 82%

PATIENT: James Soukup AGE: 64 ADMITTED: 1954 WARD: 1

DIAGNOSIS: Manic-depressive (Manic).

PREVIOUS THERAPY: Electroshock therapy.

LENGTH OF ILLNESS: Unknown. CODE NUMBER: 000-X11

Nov. 2, 1954 Patient released before

Tests 2 and 3 were completed.

BLOOD PRESSURE 122/62

URINALYSIS Test 1

Color Light yellov

Appearance Clear

Specific gravity 1.007

Reaction 6.5

Albumin Negative

Sugar Negative

Microscopic Occasional small epithelial cells, occasional

leucocytes.

HEMATOLOGY 90%

Red Blood Count 4.55

White Blood Count 4,700

Segments 52

Stabs 10

Eosinophils 2

Basophils 0

Lymphocytes 36

Monocytes 0

Blood Sugar 94 mg. %

Cephalin flocculation Negative

Phenolsulfonph- 14.0 thalein 10.0

PATIENT: John Shannon AGE: 25 ADMI TED: 1951 WARD: 7
DIAGNOSIS: Schizophrenia (peranoid).
PREVIOUS THERAPY: Electroshock therapy, Insulin, Transorbital lobotomy.
LENGTH OF ILLNESS: Ten years. CODE NUMBER: 000-X24

	Nov. 4, 1954	Nov. 18, 1954	Dec. 2, 1954
BLOOD PRESSURE	132/70	142/80	12 2/7 2
URINALYSIS	Test 1	Test 2	Test 3
Color	Yellow	Yellow	Yellow
Appearance	Slightly cloud	y Clear	Clear
Specific gravity	1.010	1.006	1.011
Reaction	5.5	5.5	6.0
Albumin	Negative	Negative	Negative
Sugar	Negative	Negative	Negative
Microscopic	2-4 White bloccells, 2-3 small epithelial cells	small epi-	Occasional white blood cells, 6-8 small epithelial cells
HEMATOLOGY	77%	90%	98%
Red Blood Count	4.46	4.27	4.38
White Blood Coun	t 13,800	14,600	11,150
Segments	57	68	56
Stabs	2	2	12
Eosinophils	3	5	1
Basophils	0	1	1
Lymphocytes	38	24	30
Monocytes	0	0	0
Blood sugar	100 mg. %	86 mg. %	110 mg. %
Cephalin floccul	ation Negative	Negative	Negative
Phenolsulfonph- thalein	56.0 29.5 85.5%	35.5 32.0 67.5%	41.2 27.0 68.2%

PATIENT: Luiseppi Salamino AGE: 62 ADMITTED: 1953 WARD: 1 DIAGNOSIS: Schizophrenia (Paranoid).

PREVIOUS THERAPY: Electroshock therapy. LENGTH OF ILLNESS: Ten years.

CODE NUMBER: 000-X24

	•	• • • • • • • • • • • • • • • • • • • •	
	Nov. 2, 1954	Nov. 16, 1954	Nov. 30,1954
BLOOD PRESSURE	172/100	162/100	148/80
URINALYSIS	Test 1	Test 2	Test 3
Color	Yellow	Light yellow	Yellow
Appearance	Clear	Clear	Clear
Specific gravity	1.023	1.015	1.021
Reaction	6.0	7.0	6.5
Albumin	Negative	Trace	Trace
Sugar	Negative	Negative	Negative
Microscopic	ial cells, occasional	Occasional white blood cells, occasional small epithel- ial cells	
HEMATOLOGY	75%	82%	73
Red Blood Count	4.63	4.98	4.50
White Blood Count	8,300	7,750	8,300
Segments	60	58	52
Stabs	18	15	10
Eosinophils	0	0	1
Basophils	0	0	0
Lymphocytes	20	26	37
Monocytes	2	1	0
Blood sugar	104 mg. %	90 mg. %	84 mg. %
Cephalin floccula	ation /	+	<i>++</i>
Phenolsulfonph- thalein	12.5 14.0 26.5%	33.5 32. 65.5	46.5 40. 86.5;

PATIENT: Grace Roberts AGE: ADMITTED: 1954 WARD: 10

DIAGNOSIS: Deferred.

PREVIOUS THERAPY: Electroshock therapy. LENGTH OF ILLNESS: Unknown. CO CODE NUMBER: 000-XYO

	Nov. 3, 1954	Nov. 17, 1954	Dec. 1, 1954
BLOOD PRESSURE	100/70	132/72	130/72
URINALYSIS	Test 1	Test 2	Test 3
Color	Light amber	Yellow	Yellow
Appearance	Cloudy	Cloudy	Cloudy
Specific gravity	1.020	1.010	1.010
Reaction	5.5	5.5	6.0
Albumin	Trace	+	+
Sugar	Negative	Negative	Negative
Microscopic	50-60 White blood cells, bacteria / 1-2 shall epithelial cells	bacteria 🗲	10-15 White blood cells, Bacteria //
Hematology	104	87%	82,
Red Blood Count	5.08	4.16	4.77
White Blood Coun	t 7,750	7,400	10,900
Segments	53	43	64
Stabs	3	6	0
Eosinophils	5	1	0
Basophils	1	0	0.
Lymphocytes	33	45	35
Monocytes	4	5	1
Blood sugar	94 mg. %	96 mg.	92 mg. %
Cephalin floccula	ation Negative	Negative	Negative
Phenolsulfonph- thalein	34.0 31.5 65.5%	29.5 28. 55.5%	31.5 29.5 61.0%

PATIENT: Virginia Roan AGE: 35 ADMITT: 1951 WARD: 6 DIAGNOSIS: Schizophrenia (mixed). CODE NUMBER: 000-X20 PREVIOUS THERAPY: Electroshock therapy, Insulin.

		3	
	Nov. 3, 1954	Nov. 17, 1954	Dec. 1, 1954
BLOOD PRESSURE	110/70	104/48	100/50
URINALYSIS	Test l	Test 2	Test 3
Color	Lig t amber	Yellow	Light Yellow
Appearance	Sligh ly cloud	y Cloudy	Cloudy
Specific gravity	1.035	1.018	1.004
Reaction	6.0	6.0	6.0
Albumin	+	+	<i>‡</i>
Sugar	Negat ve	Negative	Negative
Microscopic	blood cells, 6-8 small epi-	18-20 white blood cells, 4-6 small epi-thelial cells	3-4 small
HEMATOLOGY	81	77%	69%
Red Blood Count	4.46	3.77	4.28
White Blood Coun	t 8,650	9,250	9,650
Segments	53	54	50
Stabs	2	5	8
Eosinophils	0	2	1
Basophils	0	1	0
Lymphocytes	Щ	38	40
Monocytes	1	0	1
Blocd sugar	90 mg.	81 mg. %	90 mg. 10
Cephalin floccula	ation /	+	<i>f</i>
Phenolsulfonph- thalein	38.0 22.0 60.0%	20. 40. 60%	18.0 65.5 83.5%

PATIENT: Melen Priess AGE: 39 ADMITTED: 1950 WARD: 12 DIAGNOSIS: Schizophrenia (cetatonic).

PREVIOUS THERAPY: Electroshcck therapy, Insulin.
LENGTH OF ILLNESS: Unknown. CODE NUMBER: 000-X23

	Nov. 5, 1954	Nov. 19, 1954	Dec. 3, 1954
BLOCD PRESSURE	132/78	122/70	108/70
URINALYSIS	Test 1	Test 2	Test 3
Color	Light yellow	Yellow	Yellow
Appearance	Cloudy	Clear	Cloudy
Specific gravity	1.010	1.015	1.019
Reaction	7.5	6.0	7.0
Albumin	Trace	Negative	Trace
Sugar	Negat've	Negative	Negative
Microscopic	1-2 small epi- thelial cells, amorphous phosphates, occasional whi blood cells	3-5 small epi- thelial cells te	6-8 Red blood cells, 10-12 white blood cells, amorphous urates
MEMATOLOGY	90%	90%	90%
Red Blood Count	4.44	4.16	4.23
White Blood Coun	t 6,550	5 , 550	6,950
Segments	37	48	62
Stabs	10	14	11
Eosinophils	0	0	0
Basophils	0	0	0
Lymphocytes	52	36	27
Monocytes	2	2	0
Blood sugar	90 mg. %	86 mg. %	106 mg.
Cephalin floccul	ation /	Negative	<i>‡</i>
Phenolsulfonph- thalein	52.5 21.5	38.0 26.0	39.5 <u>39.5</u>
	73.0%	64.0%	79.0%

PATIENT: Edna Miller AGE: 41 ADMI TED: WARD: DIAGNOSIS: Schizophrenia (dementia praecox) (paranoid). PREVIOUS THERAPY: Electroshock therapy, Insulin. LENGTH OF ILLNESS: Unknown. CODE NUMBER: 000-X32 WARD: 10

DENGIN OF IDENDO	b. Olimilowii.	332 (13)	
	Nov. 1, 1954	Nov. 15, 1954	Nov. 2 <u>9</u> , 19 <u>54</u>
BLOOD PRESSURE	120/70	120/70	122/74
URINALYSIS:	Test 1	Test 2	Test 3
Color	Light Amber	Pale Yellow	Yellow
Appearance	Slightly cloud	y Clear	Slightly cloudy
Specific gravity	1.019	1.004	1.018
Reaction	5.5	5.5	5.5
Albumin	Negat:ve	Negative	Negative
Sugar	Negative	Negative	Negative
Microscopic	<pre>l-2 white bloo cells, occas- ional small epithelial cells</pre>	blood cells, occasional	1-2 white blood cells, 5-6 small epithelial cells
HEMATOLOGY	84,	849	88%
Red blood count	4.09	5.07	4.32
White blood coun	t 7,200	7,700	7,400
Segments	48	61	52
Stabs	16	12	4
Eosinophils	0	0	0
Basophils	0	0	0
Lymphocytes	32	37	41
Monocytes	4	0	3
Blood sugar	92 mg. %	84 mg. %	106 mg. %
Cephalin floccul	ation Negative	+	Negative
Phenolsulfonph- thalein	14.0 12.0 26.0%	23 20 43%	35.5 26.0 61.5

PATIENT: Mary Mason AGE: 27 ADMITTED: 1953 WARD: 8 DIAGNOSIS: Schizophrenia (catatonic).

PREVIOUS THERAPY: Electroshock therapy, Insulin. LENGTH OF ILLNESS: Un known. CODE NUMBER CODE NUMBER: 000-X23

	Nov. 1, 1954	Nov. 15, 1954	Nov. 29, 1954
BLOOD PRESSURE	122/73	140/62	104/52
URINALYSIS	Test 1	Test 2	Test 3
Color	Light yellow	Light yellow	Light yellow
Appearance	Slighuly cloud	y Slightly cloud	y Slightly cloudy
Specific gravity	1.005	1.003	1.008
Reaction	6.0	6.0	5.5
Albumin	Negat ve	1/	Trace
S uga r	Negat_ve	Negative	Negative
Microscopic		l-3 white blood cells d	
HEMATOLOGY	96%	90%	77%
Red blood count	4.33	5.04	3.80
White blood coun	t 7, 350	6,900	6,900
Segments	33	52	71
Stabs	4	2	5
Eosinophils	0	0	0
Basophils	1	1	0
Lymphocytes	61	स्म	24
Monocytes	1	1	0
Blood sugar	94 mg. 70	86 mg. %	94 mg. %
Cephalin floccula	ation //	++	<i>H</i>
Phenolsulfonph- thalein	17.5 34.0 51.5	22.0 8.5 30.5	10.0 30.0 40.0%

PATIENT: Henry Mandler AGE: 53 ADMITTED: 1952 WARD: 9 DIAGNOSIS: Manic-depressive (manic). PREVIOUS THERAPY: Electroshock therapy. LENGTH OF ILLNESS: Fifteen years. CODE NUMBER: 000-X11

	Nov. 4, 1954	Nov. 18, 1954	Dec. 2, 19 <u>54</u>
BLOOD PRESSURE16	2/64	142/90	158 /7 2
URINALYSIS Tes	st 1	Test 2	Test 3
Color	ght yell0w	Yellow	Light yellow
Appearance C	10udy	Clear	Very cloudy
Specific gravity	1.023	1.020	1.026
Reaction	5.5	6.0	6.0
Albumin	Negative	Negative	Trace
Sugar	Negative	Negative	Negative
Microscopic	amorphous urate	<pre>l-3 white blood cells, occasional small epi- thelial cells, large epithel- ial cells ##</pre>	occasional small epi- thelial cells, amorphous urates
HEMATOLOGY	1.01;	96%	85
Red blood count	4.41	5.51	5.03
White blood coun	t 7,850	6,700	7,200
Segments	62	54	52
Stabs	9	12	8
Eosinophils	1	2	4
Basophils	0	0	0
Lymphocytes	28	32	36
Monocytes	0	0	0
Blood sugar	110 mg. "	100 mg. %	92 mg. %
Cephalin floccul	ation N∋gativ >	Negative	7
Phenolsulfonph- thalein	27.0 33.5 60.5%	28 27 55%	16.5 8.5 25.0%

PATIENT: Frances Lahr AGE: 59 ADMITTE: 1935 WARD: 8 DIAGNOSIS: Manic-depressive (manic).
PREVIOUS THERAPY: Electroshock therapy, Insulin.

LENGTH OF ILLNESS: Fi teen years. CODE NUMBER: 000-X11

	Nov. 1, 1954	Nov. 15, 1954	Nov. 29, 1954
BLOOD PRESSURE	148/84	158/70	138/70
URINALYSIS	Test 1	Test 2	Test 3
Color	Yellow	Light yellow	Light yellow
Appearance	Clear	Slightly cloudy	Cloudy
Specific gravity	1.022	1.025	1.012
Reaction	6.0	6.0	7.0
Albumin	Negat ve	Trace	Slight trace
Sugar	Negat:ve	Negative	Negative
Microscopic	Occasional small epi-thelial cells	8-12 white blood cells, 1-3 small epi-thelial cells	Occasional white blood cells, Occasional small epithelial cells, amorphous phosphates
HEMATOLOGY	98%	98%	80%
Red blood count	4.70	4.48	4.06
White blocd coun	t 6,750	9,200	9,700
Segments	43	46	47
Stabs	16	13	4
Eosinophils	0	0	1
Basophils	0	0	0
Lymphocytes	40	37	45
Monocytes	1	4	3
Blood sugar	100 mg. %	104 mg. %	100 mg. %
Cephalin floccul	ation Negative	Negative	Negative
Phenolsulfonph- thalein	31.5 24.0 55.5%	26.0 14.0 40.0%	8.5 10.0 18.5%

PATIENT: Herman Krouse AGE: 50 ADMITTED: 1946 WARD: 11 DIAGNOSIS: Anxiety reaction.
REVIOUS THERAPY: Electroshock therapy, Insulin.
LENGTH OF ILLNESS: Unknown. CODE NUMBER: 000-X01

	•		
	Nov. 4, 1954	Nov. 18, 1954	Dec. 2, 1954
BLOOD PRESSURE	132/88	126/68	112/76
URINALYSIS	Test 1	Test 2	Test 3
Color	Amber	Yellow	Yellow
Appearance	Slightly cloud	y Clear	Clear
Specific gravity	1.028	1.023	1.015
Reaction	5 . 5	5.5	6.0
Albumin	Negative	Negative	Negative
Sugar	Negative	Negative	Negative
Microscopic	Amorphous urates	Occasional white blood cells, oc-casional small epithelial cell	
HEMATOLOGY	101%	90%	73%
Red blood count	4.73	4.54	3.88
White blood coun	t 6,800	6,250	4,800
Segments	44	50	47
Stabs	4	6	0
Eosinophils	0	1	1
Basophils	0	0	0
Lymphocytes	50	41	52
Monocytes	2	2	0
Blood sugar	98 mg. %	81 mg. %	92 mg. %
Cephalin floccul	ation Negat've	Negative	7
Phenolsulfonph- thalein	29.5 23.0 52.5%	19.5 32.0 51.5%	10.0 12.5 22.5%

PATIENT: Thomas Kearns AGE: 38 ADMITTED: 1950 WARD: 5 DIAGNOSIS: Schizophrenia (paranoid).
PREVIOUS THERAPY: Electroshock therapy, Insulin.
LENGTH OF ILLNESS: Ten years. CODE NUMBER: 000-X24

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	Nov. 4, 1954	Nov. 18, 1954	Dec. 2, 1954	
BLO^D PRESSURE	132/88	126/68	112/76	
URINALYSIS	Test 1	Test 2	Test 3	
Color	Light yellow	Light yellow	Yellow	
Appearance	Cloudy	Cloudy	Cloudy	
Specific gravity	1.016	1.013	1.014	
Reaction	7.5	7.0	7.0	
Albumin	Negative	Negative	Trace	
Sugar	Negative	Negative	Ne ative	
Microscopic	amorphous urates, oc- casional small epithelial cells	occasional	1-2 white blood cells, amorphous urates	
HEMATOLOGY	101%	80%	80%	
Red blood count	5.06	4.25	4.82	
White blood count	t 9,300	5,850	6,850	
Segments	54	23	47	
Stabs	7	18	7	
Eosinophils	0	0	0	
Basophils	0	0	0	
Lymphocytes	36	59	46	
Monocytes	3	0	0	
Blood sugar	100 mg. %	81 mg. /o	94 mg. %	
Cephalin floccula	ation Negative	Negati v e	<i>f</i>	
Phenolsulfonph- thalein	30 26 56%	23 18 41%	12.0 17.5 29.5%	

PATIENT: Marjorie Johnson AGE: 23 ADMITT: 1954 WARD: 12 DIAGNOSIS: Schizophrenia (undifferentiated).
PREVIOUS THERAPY: Electroshock therapy.
LENGTH OF ILLNESS: Unknown. CODE NUMBER: 000-X26

	Nov. 5, 1954	Nov. 19. 195 <u>4</u>	Dec. 3. 1954
BLOOD PRESSURE	114/58	98/50	100/62
URINALYSIS	Test 1	Test 2	Test 3
Color	Yellow	Light yellow	Yellow
Appearance	Clear	Clear	Slightly cloudy
Specific gravity	1.025	1.025	1.016
Reaction	5.5	5.5	5,5
Albumin	Negative	Negative	Negative
Sugar	Negative	Negative	Negative
Microscopic	2-3 white blood cells, occasional small epi-	Occasional small epi-thelial cells	Occasional white blood cells, occasional small epithelial cells
HEMATOLOGY	thelial cells 80%	88%	7 5, ₀
Red blood count	4.66	3.93	3.83
White blood coun	t 7,050	6,0 0	7,800
Segments	711	49	40
Stabs	5	5	2
Eosinophils	0	1	0
Basophils	0	0	1
Lymphocytes	49	45	54
Monocytes	2	0	3
Blood sugar	94 mg. %	84 mg. %	94 mg. %
Cephalin floccula	ation legative	+	<i>H</i>
Phenolsulfonph- thalein	35.5 27.0 62.5%	35.5 24. 59.5;	39.5 28. 67.5%

PATIENT: Joe Hoffman AGE: 67 ADMITTED: 1952 WARD: 1 DIAGNOSIS: Schizophrenia (involutional paranoid). PREVIOUS THERAPY: Electroshock therapy.

LENGTH OF ILLNESS: Two years. CODE NUMBER: 000-796

	•		• •
	Nov. 2, 1954	Nov. 16, 1954	Nov. 30, 1954
BLO D PRESSURE	138/78	118/80	122/70
URINALYSIS	Test 1	Test 2	Test 3
Color	Yellow	Light yellow	Yellow
Appearance	Clear	Clear	Clear
Specific gravity	1.016	1.014	1.006
Reaction	6.0	6.0	5.5
Albumin	Negative	Negative	Negative
Sugar	Negative	Negative	Negative
Microscopic	Calcium oxelat 35-40 leucc- cyte, 1-3 small epi- thelial cells	leucocytes, occasional	Occasional leucocytes
HEMATOLOGY	93,	96%	845
Red blood count	4.21	4.76	4.28
White blood coun	t 6,550	6,500	6,900
Segments	63	46	48
Stabs	11	11	11
Eosinophils	0	0	1
Basophils	0	0	0
Lymphocytes	22	42	38
Monocytes	4	1	2
Blocd sugar	81 mg.	98 mg.	90 mg.
Cephalin floccula	ation Negative	Negative	+
Phenolsulfonph- thalein	9.5 19.5 29.0%	17.5 20. 37.5%	38. 29.5 67.5)

PATIENT: Morris Hirschman AGE: 29 ADMITTED: 1947 WARD: 9 DIAGNOSIS: Dementia Praecox (hebephrenia type).

PREVIOUS THERAFY: Electroshock therapy, Insulin.

LENGTH OF ILLNESS: Ten years. CODE NUMBER: 000-X22

LENGTH OF ILLINESS: Ten years. CODE NOMBER: GRO-AZZ			DEU: GAG-VSS
	Nov. 4, 1954	Nov. 18, 1954	Dec. 2, 1954
BLOOD PRESSURE	90/40	100/64	92/48
URINALYSIS	Test 1	Test 2	Test 3
Color	Light yellow	Yellow	Light yellow
Appearance	Clear	Slightly cloudy	Clear
Specific gravity	1.010	1.016	1.010
Reaction	6.0	6.0	6.0
Albumin	Negative	Negative	Negative
Sugar	Negative	Negative	Negative
Microscopic	Occasional white blood cells	Occasional small epi-thelial cells	Occasional small epithelial cells
HEMA TOLOGY	111	88%	93,
Red blood count	4.95	5.22	4.67
White blood count	t 7,4~0	6,750	7,500
Segments	56	52	66
Stabs	2	2	2
Eosinophils	0	0	0
Basophils	0	0	0
Lymphocytes	7+0	46	32
Monocytes	2	0	0
Blood sugar	86 mg.,	81 mg.	81 mg.,
Cephalin floccula	ation /	Negative	Negative
Phenolsulfomph.thalein	Not done	19.5%	6.5 4.0 10.59

PATIENT: Mildred Hart vig AGE: 49 ADMITTED: 1938 WARD: 12 DIAGNOSIS: Schizophrenia (undifferentiated).
PREVIOUS THERAPY: Electroshcck therapy, Insulin.
LENGTH OF ILLNESS: Unknown. CODE NUMBER: 000X26

Zanati di Zanati di manami.				
	Nov. 3, 1954	Nov. 17, 1954	Dec. 1, 1954	
BLOOD PRESSURE	130/80	124/68	128/70	
URINALYSIS	Test 1	Test 2	Test 3	
Color	Light amber	Light yellow	Light amber	
Appearance	Cloudy	Cloudy	Cloudy	
Specific gravity	1.030	1.020	1.021	
Reaction	5.5	6.0	6.0	
Albumin	+	+	<i>f</i>	
Sugar	Negative	Negative	Negative	
Microscopic	calcium oxalate 1-3 red blocd cells	e 24-30 leuco- cytes, 1-4 small epi- thelial cells	Packed leucocytes, 3-5 small epi- thelial cells	
HEMATOLOGY	77%	73	73,	
Red blood count	4.03	3.33	3.88	
White blood coun	t 6,500	5,600	12,300	
Segments	70	53	58	
Stabs	5	6	6	
Eosinophils	1	1	0	
Basophils	0	0	0	
Lymphocytes	23	38	36	
Monocytes	1	2	0	
Blood sugar	100 mg.	92 mg.,	92 mg. %	
Cephalin floccula	ation Negative	<i>++</i>	<i>f</i>	
Phenolsulfonph- thalein	58.0 23.0 81%	48 27 75%	42.5 28 70.5%	

PATIENT: Halsey Graves AGE: 24 ADMIT.ED: 1949 WARD: 11 DIAGNOSIS: Schizophrenia (catatonic).

PREVIOUS THERAPY: Electroshock therapy, Insulin.
LENGTH OF ILLNESS: Unknown. CODE NUMBER: 000-X23

	Nov. 5, 1954	Nov. 19, 1954	Dec. 3, 1954
BLOOD PRESSURE	98/5'+	128/80	108/72
URINALYSIS	Test 1	Test 2	Test 3
Color	Yellow	Yellow	Yellow
Appearance	Slightly cloud	y Clear	Clear
Specific gravity	1.018	1.019	1.018
Reaction	5.5	6.0	5.5
Albumin	Trace	Negative	Negative
Sugar	Negative	Negative	Ne ga tiv e
Microscopic		Amorphous urates, oc-casional small epithelial cells	Urates
HEMATOLOGY	101/	95	87%
Red blood count	4.81	5.21	4.22
White blood coun	t 10,300	6,600	7,750
Segments	111	717	62
Stabs	6	2	6
Eosinophils	0	3	2
Basophils	0	0	0
Lymphocytes	51	50	29
Monocytes	0	0	1
Blood sugar	92 mg. %	81 mg. %	98 mg. %
Cephalin floccula	ation Negative	Negative	+
Phenolsulfonph- thalein	41.5 23.0 64.5	39.5 21.5 61.0%	15.5 22.0 37.5%

PATIENT: Darleen Freed AGE: 43 ADMITTED: 1949 WARD: 12 DIAGNOSIS: Schizophrenia (catatonic).
PREVIOUS THERAPY: Electroshock therapy, Insulin.
LENGTH OF ILLNESS: Unknown. CODE NUMBER: 000-X23

			-
	Nov. 3, 1954	Nov. 17, 1954	Dec. 1, 1954
BLOOD PRESSURE	100/70	118/64	96/60
URINALYSIS	Test 1	Test 2	Test 3
Color	Yellow	Light yellow	Yellow
Appearance	Slightly cloud	y Slightly cloud	y Cloudy
Specific gravity	1.010	1.023	1.012
Reaction	6.0	6.0	5.5
Albumin	Negative	Negative	Negative
Sugar	Nega ive	Neg tive	Negative
Microscopic	Amorrhous urates, oc- casicnal small epi-	1-2 white blood cells, occasional small epithe-	Occasional white blood cells, occasional small epithelial cells
HEMATOLOGY	thelial cells	96;	84%
Red blood count	4.51	4.14	5.59
White blood coun	t 8,600	6,900	7,650
Segments	66	56	55
Stabs	7	7	15
Eos in ophils	0	0	0
Basophils	0	0	0
Lymphocytes	26	3 6	30
Monocytes	1	1	0
Blood sugar	84 mg.,0	92 mg.	90 mg. %
Cephalin floccula	ation Negative	+	Negative
Phenolsulfonph- thalein	15.5 18.0 33.5%	26.0 27. 53.0%	17.5 23.0 40.5%

PATIENT: Lyllis Frantz AGE: 38 ADMITTED: 1950 WARD: 10 DIAGNOSIS: Schizophrenia (catatonic).
PREVIOUS THERAPY: Electroshock therapy.
LENGTH OF ILLNESS: Un'known. CODE NUMBER: 000-X23 CODE NUMBER: 000-X23

Copi Rolling.			
	Nov. 1, 1954	Nov. 15, 1954	Nov. 29, 1954
BLOOD PRESSURE	132/64	118/62	108/48
URINALYSIS	Test 1	Test 2	Test 3
Color	Yello v	Light yellow	Light yellow
Appearance	Slightly cloud	y Slightly cloud	ly Slightly cloudy
Specific gravity	1.010	1.006	1.006
Reaction	6.0	6.5	6.5
Albumin	Negat ve	Negative	Trace
Sugar	Negative	Negative	Negative
Microscopic	2-3 white blood cells, occasional epithelial cel	epithelial cells	3-5 white blood cells, occasional epithelial cells
HEMATOLOGY	84.	96%	814%
Red blood count	5.02	4.82	4.03
White blood coun	t 11, 00	8,000	5,950
Segment	62	45	60
Stabs	5	12	7
Eosinophils	0	0	0
Basophils	0	0	0
Lymphocytes	30	43	32
Monocytes	0	0	l
Blood sugar	90 mg , , o	76 mg.	86 mg. 1
Cephalin floccul	ation /	. ++	<i>H</i>
Phenolsulfonph- thalein	12.0 11.5 23.5%	34.0 27.0 61.0%	35 • 5 30 • 0 65 • 5%

PATIENT: Sam Amato AGE: 23 ADMITTED: 1949 WARD: 11
DIAGNOSI3: Manic-depressive with psychosis.
PREVIOUS THERAPY: Electroshock therapy.
LENGTH OF ILLNES: Unknown. CODE NUMBER: 000-X13

DENOTIL OF IDDINES. OHMOWI.			
	Nov. 5, 1954	Nov. 12, 1954	Nov. 19, 1954
BLO D FRESSURE			
URINALYSIS	Test 1	Test 2	Test 3
Color	Ambe '	Amber	Amber
Appearance	Slightly cloud;	y Clear	Clear
Specific gravity	1.021	1.025	1.018
Reaction	6.0	6.0	6.0
Albumin	Negative	Negative	Negative
Su gar Microscopio	: Negative	Negative	Negative
HEMA TOLOGY	calcium oxalate Occasional small epithe- lial cells		Occasional small epithelial cells
nema l'ologi	TIME CELLS	cells //	
Red blood count	85,	87%	93,
White blood count	t4.34	4.98	5.34
	7,700	5,000	9,250
Segments	49	57	71
Stabs	1	16	4
Eosinophils	0	1	0
Basophils	0	0	0
Lymphocytes	5	24	24
Monocytes	0	2	1
Blood sugar	90 mg.	81 mg.	90 mg. **
Cephalin floccula	ation /	+	+
Phenolsulfonph- thalein	6.5 40.0 46.5	15.5 23. 38.5;	36.5 19.5 56.0%

PATIENT: John Bartuseh AGE: 55 ADMIIT : 1938 WARD: 11 DIAGNOSIS: Manic-depressive (depressive).
PREVIOUS THERAPY: Electroshock therapy.
LENGTH OF ILLNESS: Unknown. CODE NUMBER: 000-X12

	Nov. 5, 1954	Nov. 19, 1954	Dec. 3, 1954
BLO D PRESSURE	152/70	138/66	128/70
URINALYSIS	Test 1	Test 2	Test 3
Color	Yellow	Yellow	Yellow
A ppearance	Clear	Clear	Slightly cloudy
Specific gravity	1.008	1.025	1.015
Reaction	6.5	6.0	6.0
Albumin	Negative	Negative	Negative
Sugar	Negative	Negative	Negative
Microscopic	Occasional small epithe-lial cells	1-3 Red blood cells, occasional small epithelial cells	Urates, occas- ional small epithelial cells
HEMATOLOGY	96%	96%	845
Red blood count	4.69	5.41	3.98
White blood coun	t 11,000	8,650	8,600
Segments	61	58	55
Stabs	11	21	4
Eosin o phils	0	1	2
Basophils	0	0	0
Lymphocytes	19	20	39
Monocytes	0	0	0
Blood sugar	130 mg. %	92 mg. %	100 mg. %
Cephalin floccula	ation Negative	+	+
Phenolsulfonph- thalein	16.5 10 26.5%	20 14.5 34.5%	32.0 28.0 60.0%

PATIENT: Jay Benson AGE: 61 ADMITTED: 1953 WARD: 9
DIAGNOSIS: Schizophrenia (catatonic).
PREVIOUS THERAPY: Electroshock therapy.
LENGTH OF ILLNESS: Thirty-eight years. CODE NUMBER: 000-X23

		7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7	
	Nov. 2, 1954	Nov. 16, 1954	Nov. 30, 1954
BLC D PRESSURE	120/80	172.98	140/60
URINALYSIS	Test 1	Test 2	Test 3
Color	Yellow	Light yellow	Light yellow
Appearance	Clear	Clear	Clear
Specific gravity	1.022	1.003	1.001
Reaction	6.0	6.5	6.0
Albumin	Negative	Negative	Negative
Sugar	Negative	Negative	Negative
Microscopic	Occasional small epithel-ial cells	Occasional leuc cytes, 1-3 smal epithelial cell	o- Occasional l small epi- s thelial cells
HEMATOLOGY	7 5%	75%	90%
Red blood count	3.92	4.64	4.36
White blood coun	t 11,650	8,050	7,650
Segments	70	63	61
Stabs	5	5	3
Eosinophils	1	4	5
Basophils	0	0	1
Lymphocytes	23	28	30
Monocytes	ı	0	0
Blood sugar	90 mg. %	126 mg. %	92 mg. %
Cephalin floccula	ation Negative	+	<i>}</i>
Phenolsulfonph- thalein	26 24 50%	7.5 17.5 25.0%	20.0 18.0 38.0%

PATIENT: John Beveri ige AGE: 34 ADMITTED: 1954 WARD: 9 DIAGNOSIS: Schizophrenia.
PREVIOUS THERAPY: Transorbital lobotomy, Insulin, Electro-

shock therapy. LENGTH OF ILLNESS: Ten years.

CODE NUMBERS: 000-X21

	Nov. 12, 1954	Nov. 26, 1954	Dec. 10, 1954
BLOOD PRESSURE	120/80	82/54	
URINALYSIS	Test 1	Test 2	Test 3
Color	Yellcw	Light yellow	Yellow
Appearance	Slightly cloud	y Clear	Clear
Specific gravity	1.015	1.003	1.003
Reaction	6.0	5.5	6.0
Albumin	Slight trace	Negative	Negative
Sugar	Negative	Negative	Negative
Microscopic	Occasional small epithe-lial cells	6-8 leucocytes, occasional small epithe-lial cells	Occasional small epi-thelial cells
HEMATOLOGY	104%	101%	849
Red blood count	5.06	5.14	4.38
White blood coun	t 5,100	5,500	4,650
Segments	54	49	48
Stabs	4	6	8
Eosinophils	2	0	0
Basophils	6	0	0
Lymphocytes	39	स्प	36
Monocytes	1	1	7
Blood sugar	90 mg. %	104 mg. 70	98 mg. %
Cephalin floccula	ation /	++	++
Phenolsulfonph- thalein	22.0 31.5 53.5%	12.0 30. 42.0	12.0 21.5 33.5%

PATIENT: Charles Brown AGE: 39 ADMITTED: 1954 WARD: 5 DIAGNOSIS: Schizophrenia (catatonic).
PREVIOUS THERAPY: Electroshock therapy.
LENGTH OF ILLNES: Two months. CODE NUMBER: 000-X23

	Nov. 4, 1954	Nov. 18, 1954	Dec. 2, 195 <u>4</u>
BLOOD PRESSURE	118/80	138/70	110/80
URINALYSIS	Test 1	Test 2	Test 3
Color	Amber	Amber	Light yellow
Appearance	Slightly cloud	y Cloudy	Clear
Specific gravity	1.028	1.025	1.017
Reaction	5.5	6.5	6.0
Albumin	Negative	Negati v e	Negative
Sugar	Negative	Negative	Negative
Microscopic	Amorphous urates, occasional small epithelial cells	Amorphous urates, oc-casional white blood cells	1-2 white blood cells
HEMATOLOGY	85 1	93%	87%
Red blood count	4.85	4.32	4.03
White blood coun	t 5,350	8,300	6,800
Segments	37	38	37
Stabs	3	4	6
Eosinophils	0	2	2
Basophils	0	0	0
Lymphocytes	58	54	54
Monocytes	3	2	0
Blood sugar	98 mg.	90 mg.	92 mg.
Cephalin floccula	ation Negative	+	+
Phenolsulfonph- thalein	18.0 42.5 60.5%	58 11.5 69.5%	15.5 12.5 28.0%

PATIENT: Edna Chelbur; AGE: 41 ADMITTED: 1943 WARD: 12 DIAGN SIS: Schizophreia (par noid).
PREVIOUS THERAPY: Electroshock therapy, Insulin.
LENGTH ILLNESS: Unknown. CODE NUMBER: 000-X24

	Nov. 1, 1954	Nov. 15, 1954	Nov. 29, 1954
BLOOD PRESSURE	120/80	122/80	118/78
URINALYSIS	Test ?	Test 2	Test 3
Color	Yellow	Light yellow	Yellow
Appearance	Slightly cloud	y Slightly cloud	y Slightly cloudy
Specific gravity	1.037	1.025	1.032
Reaction	6.0	6.0	6.0
Albumin	Negative	Negative	Necative
Sugar	Negat ve	Negative	Negative
Microscopic	Occasional white blood cells	Amorphous urates	Occasional white blood cells
HEMATOLOGY	84	77%	84,
Red blood count	4.36	4.35	4.36
White blood count	t 7,200	6,700	7,200
Segments	51	59	51
Stabs	5	4	5
Eosinophils	1	0	1
Basophils	1	0	1
Lymphocytes	42	35	42
Monocytes	0	2	0
Blood sugar	86 mg.	81 mg. %	86 mg.,
Cephalin floccula	ation //	<i>H</i>	<i>++</i>
Phenolsulfonph- thalein	45.5 18.0 63.5%	36.5 26. 62.5;	45.5 18. 63.5;

PATIENT: Florence Erickson AGE: 59 ADMITTED: 1950 WARD: 12 DIAGNOSIS: Schizophrenia (paranoid).
PREVIOUS THERAPY: Electroshock therapy.
LENGTH OF ILLNESS: Un mown. CODE NUMBER: 000-X24

	Nov. 1, 1954	Nov, 15, 1954	Nov. 29, 1954
BLO D PRESSURE	110/60	124/52	96/40
URINALYSIS	Test 1	Test 2	Test 3
Color	Light yellow	Light yellow	Pale yellow
Appearance	Clear	Clear	Clear
Specific gravity	1.007	1.011	1.002
Reaction	6.0	6.0	6.0
Albumin	Negative	Negative	Negative
Sugar	Negative	Negative	Negative
Microscopic	Occasional white blood cells, occas- ional small epithelial cells, few bacteria	Occasional white blood cells	Occasional white blood cells, occasional small epithelial cells
H EMATOLOGY	7 5	80°	75.
Red blood count	3.96	4.39	4.47
White blood coun	t 6,900	9,900	6,950
Segments	<u>1</u> 0	67	68
Stabs	1	6	9
Eosinophils	0	4	2
Basophils	0	1	2
Lymphocytes	59	23	20
Monocytes	0	1	1
Blood sugar	90 mg.	98 mg. ,	100 mg. %
Cephalin floccul	ation Negative	Negative	Negative
Phenolsulfonph- thalein	33.5 15.5 49.0%	33.5 22.0 55.5;	33.5 27. 60.5%

Conclusion:

That 2-Ethyl-3-propylglycidamide in 1600 milligram doses over a four weel period to adult humans has no significant toxicity as ascertained by laboratory studies and clinical observation.

Reference

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