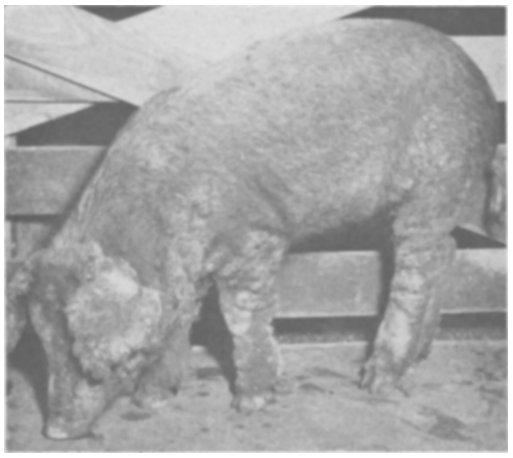

FIG. 1. A pig showing the dermatitis syndrome, observed in all lots except 2 and 3.

nor were the gains of pigs receiving aureomycin significantly different from those of pigs receiving terramycin. Chloromycetin failed to stimulate growth. This is particularly interesting in view of the fact that chloromycetin is a "wide spectrum" antibiotic similar in scope to aureomycin and terramycin. The arsonic acid derivative did not cause a significant increase in gains but did result in feed efficiency considerably better than for all other lots. Aureomycin and terramycin stimulated appetite as indicated by daily feed consumption figures, which probably accounted in part for the large gains.

Occasional scouring occurred during the first four weeks of the experiment in lots 1, 5, 6, and 7. Scours were most severe and continued longest on the bacitracin (lot 6). Two pigs in each of lots 1, 5, and 6 showed a dermatitis syndrome. One pig each in lots 4 and 7 was afflicted with this condition. All of these animals gained very poorly during the experiment. A typical pig is shown in Fig. 1.

Summary. Of the various substances tested in this experiment only aureomycin and terramycin gave significant growth response. This response was approximately the same in magnitude. These two antibiotics controlled an intermittent type of diarrhea observed on the basal ration. The other treatments were not effective in this respect.

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Observations of 3-Hydroxy-N-Methylmorphinan Hydrobromide (Dromoran®) on Fetal Respiratory Movements of the Rabbit.* (19228)

TOM G. HALASEY AND JAMES M. DILLE.

From the Department of Pharmacology, School of Medicine, University of Washington, Seattle, Wash.

3-hydroxy-N-methylmorphinan hydrobromide is a synthetic analgesic chemically related in structure to morphine marketed under the registered name Dromoran®. Clinical reports(1-3) indicate that it is 3 to 4 times as potent as morphine and that certain side effects common to morphine are minimal or absent. It has not been advocated as an obstetrical analgesic but its chemical relationship to morphine as well as the importance of any analgesic to the obstetrician has led to an investigation of the effect of Dromoran®

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TABLE I. Effect of Dromoran Administered Intravenously into Maternal Circulation on Respiratory Rate of the Mother and on Mean Respiratory Rate of the Fetuses.

Dose, mg/kg	Respiratory rate	Mean respiratory rate at end of: Control	5 min	15 min	30 min	60 min	90 min	2 hr	3 hr	4 hr
1.5	M*	200	56	50	46	40		38	42	50
	MF	15.5	6.5	1.5	10.2	15.3		26.3	16.9	22.6
2	M	306	50		27		27	30	43	48
	MF	14.1	.3		2.4		3.4	6.2	2.4	4.2
3	M	145	55		55		74	80	85	82
	MF	13.9	0		.36		10.7	8.9	8.8	.36
4	M	360	51		38	46	41	40	42	
	MF	14.7	1.1		5.6	24.4	13	15.6	30.7	
4.5	M	150		15	20	19	31	45	59	85
	MF	35		1.3	1.2	1.2	.9	4.6	8.1	8.4
4.5	M	90	48	45	100	127		144	63	65
	MF	11.6	0	0	.25	1		2.7	3.3	1.7
5	M	315	26	23			45	43	Maternal death	
	MF	11.6	0	6.5			2.2	.8	in 145 min	
5	M	143	3	39		34		33	Maternal death	
	MF	14.5	0	0		0		0	in 135 min	
5	M	360		29	25	27		34	44	150
	MF	14.9		0	1.5	7.6		14.9	13.1	5.5
10	M	270	18	16		13	13	16	18	26
	MF	13.6	0	0		0	0	0	2.3	6.4
15	M	110	32	37	27	30	24	26	46	53
	MF	15	0	0	0	0	0	0	0	1.5
20	M	280	11	37	35	23		13	14	23
	MF	17.7	0	0	0	0		0	1.6	6.8

* M = maternal. MF = mean fetal.

on the fetal respiratory movements of the rabbit.

Methods. Snyder(4) has reported that regular rhythmic respiratory movements occur in fetuses during a period of immediately before birth and has shown that these movements are influenced by drugs administered to the maternal circulation. The procedures used were modified from those reported by Snyder and Rosenfeld(5) and Bonar and Blumenfeld(6). Approximately 7 days before the expected termination of pregnancy, a dose of 120 to 130 IU of an extract of pregnancy urine (Antuitrin S®, Parke-Davis) was administered intravenously. This hormone inhibits uterine contractions and minimizes this effect on the respiratory activity of the fetus (7). Within a day or two of the expected delivery a spinal transection was carried out under local anesthesia at the level of T10 or T11. The rabbit was then placed in a large bath containing Ringer solution maintained at 37°C so that the lower trunk was submerged. By means of midline incision the uterus was exposed and opened permitting the fetuses to rest lightly on a small supporting shelf under the surface of the bath. Maternal respirations were recorded by means of a chest pneumograph and the fetal respiratory movements were recorded by means of a series of keys operating signal magnets. After a control period the Dromoran® was administered by the marginal ear vein of the mother in such a concentration as to make a total volume of approximately 2 cc.

Results. Table I gives a summary of the effect of doses of 1.5 mg to 20 mg per kg of Dromoran® administered to the mother on maternal respiration rate and on the mean fetal respiration rate.

Considerable variation was observed in the fetal respiratory movements of a single rabbit. This can be seen in Table II which presents the complete data from an experiment in which the mother was given 4.5 mg per kg. This table indicates that while there was considerable variation between individual fetuses all showed decreased respiratory activity from the administration of this dose to the mother.

Discussion and summary. Dromoran®

TABLE II. Effect of Intravenous Administration of 4.5 mg Dromoran[R] per kg to the Maternal Circulation on Respiratory Rates of the Mother and Fetuses.

4.5 mg/kg	Control	15 min	30 min	60 min	90 min	2 hr	3 hr	4 hr
Maternal	150	15	20	19	31	45	59	85
Fetus: 1	24	0	0	0	0	0	14	10
2	30	4	6	6	4.5	14	18	15
3	26	0	0	0	0	2	2	7
4	31	0	0	0	0	5	5	0
5	65	2.5	0	0	0	2	1.5	10
Mean fetal rates	35	1.3	1.2	1.2	.9	4.6	8.1	8.4

passes without difficulty across the placental barrier and produces a decrease in the rate of respiratory movements of the fetuses. This passage across the placental barrier might be expected in view of the general principle stated by Needham(8) that the placental barrier is freely passed by practically all substances of low molecular weight. Thus in obstetrical analgesia one can assume that the agent will pass the placental barrier and the best analgesic will be one which will have high analgesic potency in the mother and a minimal effect on fetal respiration activity. The final evaluation of an analgesic must therefore be made under clinical conditions where the analgesic property can be evaluated in the patient. The doses of Dromoran® used in these experiments were much higher than would be used for human patients and there is no doubt but what satisfactory analgesia in humans can be obtained with lower doses. The question of whether these doses depress the respiratory function of the baby can be answered by clinical observation only with difficulty. On the basis of the parallelism shown in the rabbit experiments between the response of the maternal respiration rate and the rate of fetal respiratory movement it would appear safe to assume that if, in the human mother, respiratory function was depressed there would almost certainly be a corresponding effect on the respiratory function of the baby. Thus an obstetrician might make use of changes in the maternal respiration rate as an index to the respiratory function of the baby.

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Dibenamine Blockade as a Method of Distinguishing Between Inotropic Actions of Epinephrine and Digitalis.*† (19229)

M. DEV. COTTEN AND R. P. WALTON.

From the Department of Pharmacology, Medical College of South Carolina, Charleston.

A differentiation of the inotropic effects of epinephrine and digitalis has direct application in the characterization of such drugs as the veratrine alkaloids. These alkaloids produce cardiac actions which resemble, in some particulars, both those of epinephrine and

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