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COMPOSITE BARBITURIC-ACID DERIVATIVE

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It is the object of my invention to produce a barbituric sedative and hypnotic which both acts promptly and exerts a fairly uniform effect over a considerable period.

Many barbituric-acid derivatives are known sedatives and hypnotics. But in general those which are available from other standpoints have a fairly low and fairly constant ratio between the duration of the hypnotic effect and the time of onset—for those which start their action quickly also end it quickly, and those which continue their action for a long time are slow in starting that action. In consequence, they do not give both an early-starting and a long-continuing effect.

I have discovered that by putting together two or more barbituric-acid derivatives which have different times of onset and different durations of action I am able to get both early starting and long duration; and, most surprisingly, that the onset of action may be made to be even quicker than that of the quick-acting barbituric-acid derivative and/or that the duration of action may be made to be even greater than that of the slow-acting barbituric-acid derivative.

Thus, sodium isoamyl ethyl barbiturate, orally administered, ordinarily takes from thirty to forty minutes to become effective, but its effect usually continues for perhaps six to ten hours; while sodium propyl-methyl-carbinyl ethyl barbiturate, (also called sodium ethyl (1-methyl-butyl) barbiturate) similarly orally administered, ordinarily takes effect within twenty to thirty minutes but usually ceases its action within about five to seven hours, and sodium propyl-methyl-carbinyl allyl barbiturate ordinarily takes effect in ten to twenty minutes but its effect usually passes off within about three to five hours. None of them, individually, gives both prompt and long-continued effect.

But by putting together one of these three types of barbituric-acid derivatives with either or both of the others, it becomes possible to increase the ratio between the duration of action and the time of onset.

The proportion between the amounts used of the several barbituric-acid derivatives may vary as desired, in accord with the type of total effect to be produced. For example, excellent results may be obtained by the following composite products, in terms of the usual adult oral dose.

Example 1:
- Sodium isoamyl ethyl barbiturate — 1½ grains
- Sodium propyl-methyl-carbinyl allyl barbiturate — 1½ grains

Example 2:
- Sodium isoamyl ethyl barbiturate — 2 grains
- Sodium propyl-methyl-carbinyl allyl barbiturate — 1 grain

Example 3:
- Sodium isoamyl ethyl barbiturate — 1 grain
- Sodium propyl-methyl-carbinyl allyl barbiturate — 2 grains

Example 4:
- Sodium isoamyl ethyl barbiturate — 1½ grains
- Sodium propyl-methyl-carbinyl ethyl barbiturate — 1½ grains

Example 5:
- Sodium isoamyl ethyl barbiturate — 2 grains
- Sodium propyl-methyl-carbinyl ethyl barbiturate — 1 grain

Example 6:
- Sodium isoamyl ethyl barbiturate — 1 grain
- Sodium propyl-methyl-carbinyl ethyl barbiturate — 2 grains

Example 7:
- Sodium propyl-methyl-carbinyl ethyl barbiturate — 1½ grains
- Sodium propyl-methyl-carbinyl allyl barbiturate — 1½ grains

Example 8:
- Sodium isoamyl ethyl barbiturate — 1½ grains
- Sodium propyl-methyl-carbinyl ethyl barbiturate — ¾ grain
- Sodium propyl-methyl-carbinyl allyl barbiturate — ¾ grain

Example 9:
- Sodium isoamyl ethyl barbiturate — 1 grain
- Sodium propyl-methyl-carbinyl ethyl barbiturate — 1 grain
- Sodium propyl-methyl-carbinyl allyl barbiturate — 1 grain

Example 10:

Sodium di-ethyl barbiturate	2 grains
Sodium isoamyl ethyl barbiturate	1 grain
Sodium propyl-methyl-carbinyl allyl barbiturate	1 grain

Example 11:

Sodium phenyl ethyl barbiturate	1½ grains
Sodium propyl-methyl-carbinyl ethyl barbiturate	¾ grain
Sodium propyl-methyl-carbinyl allyl barbiturate	¾ grain

Various other combinations can be made, as desired, for those given are merely examples.

In these examples, the corresponding barbituric acids, or other salts than the sodium salts, may be used instead of the sodium salts if desired.

The composite products obtained can be administered either orally or parenterally, in the usual manner of barbituric derivatives; although for parenteral administration the salts and not the acids are desirable. Oral administration is usually preferred for human use.

My composite barbituric-acid derivatives are found especially advantageous in obstetrics, in pre-surgical anesthesia, and as hypnotics for general use.

I claim as my invention:

1. A composite barbituric-acid derivative suitable for oral and parenteral administration, comprising sodium isoamyl ethyl barbiturate and sodium propyl-methyl-carbinyl allyl barbiturate.

2. A composite barbituric-acid derivative suitable for oral and parenteral administration, comprising sodium isoamyl ethyl barbiturate and sodium propyl-methyl-carbinyl ethyl barbiturate.

3. A composite barbituric-acid derivative suitable for oral and parenteral administration, comprising sodium propyl-methyl-carbinyl allyl barbiturate and sodium propyl-methyl-carbinyl ethyl barbiturate.

4. A composite barbituric-acid derivative suitable for oral and parenteral administration, comprising sodium isoamyl ethyl barbiturate and sodium propyl-methyl-carbinyl allyl barbiturate and sodium propyl-methyl-carbinyl ethyl barbiturate.

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