3.1 Introduction

It is essential, ethically and legally, to reduce the perception of pain and minimize the discomfort felt by the animal subjected to experimental surgery. A range of anesthetic agents is available to obtain adequate analgesia, and the appropriate choice depends on the duration of the surgical procedure to be performed. In some cases, sedation, muscle relaxation, and inhibition of sympathetic or parasympathetic reflexes would be needed.

3.2 Preoperative Care

Hamsters are housed one per plastic cage lined with sawdust bedding. They are kept at 24 ± 2 °C in 50 ± 20% humidity with a 12 h alternate light and dark cycle. They are fed a standard pelleted diet and provided drinking water ad libitum. Unlike several other species, including dogs, cats, and pigs, which require pre-anesthetic fasting to reduce the risk of vomiting, fasting is not necessary in hamsters because they do not vomit. However, fasting for 8–12 h prior to surgery on the digestive systems is recommended, so that the stomach and the intestines are as empty as possible. The pre-anesthetic sedation of hamsters is not necessary.

3.3 General Anesthesia

The induction of anesthesia in hamsters is most conveniently achieved by inhalation anesthesia, using an anesthetic chamber made of transparent material, called an “ether jar” (Figure 3.1). It is common practice to anesthetize hamsters in a glass chamber containing cotton wool, wastepaper, or wood-shavings, moistened with liquid anesthetic, especially ether (diethyl-ether). Ether is inexpensive and allows for the easy handling of animals in the induction of anesthesia. It is important to remember that
direct contact with the vaporizing liquid is highly unpleasant for the animal as it freezes the skin and irritates the mucous membranes of the mouth and the respiratory tract.

Following the induction of anesthesia using ether, it is best to give pentobarbital as an intraperitoneal (i.p.) injection to achieve sufficient general anesthesia in hamsters (Figure 3.2). Pentobarbital (Nembutal®), at a dose of 50–60 mg/kg, i.p., will produce