

25 to 50 liters per minute the resistance is increased 5 mm. of water. The exhalation valve of the nonbreathing valve can be removed in order to decrease the expiratory resistance to almost zero at the flow of clinical range. Thus the flabby end of the exhalation tunnel may act just like an exhalation valve.

REFERENCES

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New Three-Way Connector with Unidirectional Valve

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It is not unusual to administer more than one intravenous solution simultaneously into one vein during the course of anesthesia. Many devices have been marketed in an effort to facilitate the simultaneous use of more than one intravenous solution. Disposable three-way stopcocks are used, but only two bottles of intravenous fluid may be hooked into the stopcock; and they are relatively expensive. The presently described three-way connector is jointed and flexible. The intravenous tubing adaptors fit directly into the female portions of the connector without the use of a needle. A unidirectional valve (A) is incorporated proximal to the connector to prevent reflux of blood through the connector and back into the intravenous tubing. It is the only intravenous apparatus into which a unidirectional valve has been built. An 18-inch extension tube is added to the connector at (B). At the completion of the case the ex-

tension tube may be thrown away and a new one attached to the three-way connector.

The connector has undergone thorough sterility tests. The unidirectional valve functions perfectly when considerable pressure is exerted against it. In some instances a small amount of reflux can occur into the extension tube before the valve is activated. In three instances out of 600, the valve failed to function properly and reflux of blood did occur through the extension tube.

The unidirectional valve was checked by applying a tourniquet around the upper arm and observing if there was any reflux of blood back into the tubing. The incidence of functional failure of the valve has been low; however, it does not function perfectly in all instances and the attention of the anesthetist is still required in order to be sure that the valve is functioning properly.

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