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WATERLESS EMBALMING - AN INVESTIGATION

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Part 2

Waterless embalming, theoretically, does have certain advantages. In waterless embalming, the water injected into the body is definitely minimized, even if by a relatively small amount. The total water injected in a waterless procedure is only 60-70 ounces less than in a conventional embalming. In the majority of circumstances this difference does not appear to be significant. By using no dilution water, the contaminants or other unknowns present in the dilution water is obviously minimized. Again, in the great majority of circumstances this does not appear to be a critical consideration.

The moderate use of modern embalming accessory chemicals (such as water correctives, etc.) eliminates almost all detrimental effects of the dilution water except under the most severe situations. In waterless embalming, the total chemicals injected into the body is obviously greater than in conventional embalming. This is apparently not a factor in normal cases but does contribute to an increased success rate when difficult or extreme cases are considered. This is no doubt due to the increased preservative demand in difficult or extreme cases.

The excessive use of fluid additives must be carefully considered. With an increase in accessory or helper chemicals comes an increased need for additional preservative chemicals. This is obvious in the waterless type embalming of normal cases where only typical or slightly greater rigidity and preservation is achieved when using formaldehyde percentages far in excess of normal values. Increased usage of accessory chemicals results in some modification and partial deactivation of the preservative ability of the primary fluid by the action of complexation, cross-reaction and excessive pH divergences. When accessory chemicals are used in large quantities they can exert a deleterious effect on the total action of the fluid. The result would be an increased preservative demand and dilution factor much greater than normally encountered where more moderate amounts of chemicals were added.

Modern embalming chemicals in conventional amounts balance the preservative requirements of embalming versus the unwanted side effects of embalming. Modern embalming accessory chemicals minimize dehydration and promote proper fluid action and maximize drainage and distribution when used in conventional dilutions. If extremely large quantities of accessory chemicals are used, then a concomitant increase in preservative chemicals is required.

Medical colleges have obviously been practicing a modified form of waterless type embalming in their preservation of anatomical specimens. Highly concentrated amounts of preservative chemicals are mixed with relatively large quantities of accessory type chemicals to insure a thorough embalming with considerable rigidity while attempting to overcome dehydration and other unwanted side effects that are unavoidable at these higher concentrations. This modified or semi-waterless embalming technique has been proven effective in the embalming of difficult and extreme cases.

TABLE 3

COMPARISONS

CONVENTIONAL VERSUS WATERLESS

20 - 25% DIFFERENCE IN WATER CONTENT OF INJECTED SOLUTION = 25 - 30 OZ./GALLON

TOTAL DIFFERENCE IN WATER INJECTED DURING PROCEDURE = 60 - 70 oz.

7 - 9 BOTTLES OF CHEMICALS USED DURING CONVENTIONAL EMBALMING

20 - 24 BOTTLES OF CHEMICALS USED DURING "WATERLESS" EMBALMING

225 - 300% INCREASE IN FLUID USAGE

The use of modern glutaraldehyde/formaldehyde multi-based embalming chemicals potentiate the preservation action in a synergistic manner. This enhancement of fluid action allows the use of lesser quantities of accessory/modifier or helper chemicals to be used and still obtain excellent embalming results. This is in contrast to the older and harsher formulations that require considerably larger quantities of modifying and accessory chemicals to properly control the fluid action and prevent unwanted reactions such as "tissue burn", dehydration, shrinkage, graying, and limited distribution.

IN SUMMARY: Waterless embalming appears to be a specialized technique to be reserved for extreme or difficult cases only. Appropriate use of conventional technique and dilution in normal embalming situations is more than adequate in almost all cases. When the success rate of modern multi-aldehyde multi-based embalming chemicals in conjunction with the use of conventional amounts of accessory chemicals is considered along with the substantial cost factors involved-waterless embalming appears to be neither required nor recommended in the embalming of normal and near-normal cases.

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