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PRELIMINARY REPORT ON THE USE OF A PRESSURE GRADIENT, ELASTIC SUPPORT IN CONDITIONS ASSOCIATED WITH IMPAIRED VASCULAR RESERVE*

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The fundamental bases of the vascular insufficient state can be predicated on any admixture of inherited, anatomic, physiologic and pathologic considerations.

These facets and their interrelationships were developed through a series of lantern slides which stressed the dynamic principles involved in the lymphatic, hemal and tissue pressures associated with this problem. Because the post-thrombophlebitic state is the most common antecedent to vascular insufficiency of the lower extremity, it was used as the model on which to affix the pertinent points of reference. Basically, most of the information available on this problem comes from Burch's primer¹ and Franklin's monograph². These sources were supplemented by the more recent advances in the anatomic and physiologic mechanisms associated with lymphatics³ and stasis pressures⁴ and the histologic findings in the healing of grafts over stasis ulcers of the lower extremities⁵. The pathogenetic factors leading to stasis dermatitis and ulceration were then elucidated⁶ but actual detailed therapeutic modalities leading to healing of the ulcers were merely mentioned and not discussed.

The problem of providing and maintaining support adequate to neutralize stasis in the lower extremities in the face of lymphatic, hemal and tissue pressures was then discussed. It was pointed out that because gravity forces the body to employ pressure-gradients it is self-evident that in order to reconstitute the most effective and physiologic appliance to correct vascular insufficient states, one must use a prosthesis which employs the same principles. The only appliance available at this time which does this is the Jobst stocking. Actually, this prosthesis is a pressure-gradient pump in the form of a fitted stocking. For maximal results it is essential that the ordering physician himself — not his technician — measure for this prosthesis. Furthermore, the physician must determine by history and physical examination which of the available pressures (30, 40 or 50 mm. Hg) this particular patient needs to come closest to correcting for that insufficiency. On follow-up visits the physician must then evaluate the necessity for more or less pressure to be built into the prosthesis and the correctness of the fitting which he has made.

Aids in making a proper measurement were discussed, and it was pointed out that even with experience one could only hope to get the proper pressure and fitting with the first measurement in but 3 out of 4 patients.

Several graphs were then shown via lantern slides which were a compilation of a 50% answer rate to (20 question) questionnaires that were mailed to our first 200

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patients to be fitted for this prosthesis in the Dermatology Division. Of this group, about 75% were seen in the clinic to verify their answers objectively.

From this preliminary information which is obviously based on the poorest possible sampling as the investigator and his colleagues were learning how to apply this prosthesis in this group of patients, it is very encouraging to be able to report that those patients who had the most severe vascular insufficient states were able to be controlled about 90 — 100% if on a venous basis and about 75% if on a lymphatic basis.

The majority of the moderately severe and all of the severe patients had tried all types of prosthetic support prior to the use of pressure-gradient Jobsts with partial to no relief of their symptoms.

The possibility of making these measurements for the prosthesis more uniform and easier through instrumentation was noted and some of the areas in need of more research were indicated.

A series of papers will be forthcoming discussing these problems in the near future.

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