

COMMENTARY

**REMARKS CONCERNING THE CONSENSUS DOCUMENT (CD)
OF THE INTERNATIONAL SOCIETY OF LYMPHOLOGY
“THE DIAGNOSIS AND TREATMENT OF PERIPHERAL LYMPHEDEMA”**

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1. Introduction

According to my understanding the Consensus Document (CD) (1) should confine itself to supply physicians and lymphedema therapists with **practice guidelines and to leave out consideration of hotly debated questions concerning definitions**. “Practice guidelines have been defined by the Institute of Medicine as systematically developed statements to assist practitioner ... decisions about appropriate health care for specific clinical circumstances. Guidelines can be developed based on informal consensus ... Evidence-based guidelines are the most rigorously developed. There should be a focused clinical question, and a systematic approach to the retrieval, assessment of quality and synthesis of evidence should be followed.” (2)

2. The CD states: “*Lymphedema is an external manifestation of lymphatic system insufficiency ...*”

To my mind this definition is wrong, because there are various forms of lymphatic system insufficiencies, because lymphedema can be caused not only by deranged lymph transport, but by the incapability of the initial lymphatics to form lymph, too, and because lymphedema is characterized not only by “*external manifestations*”; **internal** manifestations exist, too!

Every author has his own definition; the definition has no relevance for practitioners and therapists; the Executive Committee of the Society is not authorized to commit the authors to employ the proposed definition!

3. The same holds true for the statement, that “*Swelling is produced by accumulation in the extracellular space of excess water, filtered plasma proteins, ...*”

It is textbook-knowledge, that plasma proteins are not only **filtered**; they leave microcirculation by **diffusion**, too. The word “filtered“ has to be deleted.

4. According to the CD: “...lymphedema is a chronic, generally incurable ailment, it requires, as do other chronic disorders, lifelong care and attention along with psychosocial support. The continued need for therapy does not mean a priori that treatment is unsatisfactory, although it is less than ideal.”

- Lifelong care is **not** always necessary! I recommend the formulation “... chronic disorders, in most cases lifelong ...”

“*Often less than ideal*” is not a scientific formulation! The CD should state, that no method of lymphedema treatment exists, which would have been analyzed according to the rigorous criteria of “evidence based medicine” and, that no such studies will be available in the foreseeable future, because

these criteria can't be fulfilled. It would be necessary to:

- Select a homogenous group of patients considering, i.e.,
 - Stage of the disease, the
 - age of the patients,
 - accompanying diseases, the
 - compliance, the
 - geographical area (2), etc.
- It would be necessary to allocate the patients randomly in groups, for example:
 - No treatment at all;
 - Combined Decongestive Therapy (CDT);
 - Intermittent compression;
 - Thermotherapy;
 - Microvascular Surgery, as the creation of lympho-(nodo-)venous shunts, lymph vessel transplantation, vein-transplantation;
 - Debulking operations;
 - Liposuction.
- The problems of small area and volume outcome variations (homogenous groups not only of patients, but also of therapists and of physicians) have to be considered.
- The end-point of the study could not be before 10 years. Regular checkups would be mandatory.

What concerns CDT: in its homeland, Germany, it has become, several decades before "evidence based medicine" has been codified, the routine treatment, paid for by Social Security! This fact excludes the possibility that a group of patients would receive no treatment at all or could be allocated to some other form of treatment.

5. According to the CD: "*Patients with chronic venous insufficiency require lifelong external compression therapy to minimize edema, lipodermatosclerosis and skin ulceration.*"

In CVI compression **prevents** these alterations, if applied immediately when ambulatory venous hypertension appears! If the alterations are already present, CDT eliminates edema and lipodermatosclerosis; skin ulcerations disappear.

6. According to the CD: "*The compliance and commitment of the patient is also essential to an improved outcome.*"

The word "also" and the term "improved outcome" are false. **Compliance is a "conditio sine qua non"** in CDT. It is mandatory for the **maintenance** and for the **optimization** of the results of its "Phase one."

7. The CD states: "*With chronic venous insufficiency, poor patient cooperation may be associated with progressive skin ulceration, hyperpigmentation, and other trophic changes in the lower leg.*"

In CVI, poor patient cooperation (= no compression!) **is the cause** of trophic changes; good compliance prevents them. Hyperpigmentation is **not** a trophic change; it is the consequence of the well-known "stretched pore phenomenon."

8. Concerning the definitions of staging of peripheral lymphedema in the CD: "*Stage I represents an early accumulation of fluid relatively high in protein content (e.g. in comparison with venous edema) and subsides with limb elevation. Pitting may occur. Stage II signifies that limb elevation alone rarely reduces tissue swelling and pitting is manifest. Late in Stage II, the limb may or may not pit as tissue fibrosis supervenes. Stage III encompasses lymphostatic elephantiasis where pitting is absent and trophic skin changes such as acanthosis, fat deposits and warty overgrowths develop. Within each Stage, severity based on volume difference can be assessed ...These Stages only refer to the physical condition of the extremities. A more detailed and inclusive classification needs to be formulated.*"

- It is a mistake to regard "venous edema" as an example of a low-protein edema: **in the final Stage of CVI, it is a high-protein edema!** An adequate example would be the anasarca in the nephrotic syndrome with a protein concentration of around 0.1 g%!
- The description of the stages is wrong.

Correctly:

Stage I: Pitting; elevation reduces the swelling.

Stage II: No pitting (brawny); elevation is without effect.

Fat deposits develop already in Stage II.

- Severity cannot be based on volume differences alone! For example: the presence, or the absence of erysipelas attacks (cellulitis, dermatolymphangioadenitis) is much more important. In addition, the figures are based on personal appraisals, they lack any scientific substance.
- It is not the task of the CD to express a view concerning future Stage-classifications. They will automatically arise if new facts become established. Presently, based on our experience gained from seeing about a hundred thousand patients suffering from lymphedema, we are quite happy with the stages as described above.

9. Concerning the use of imaging studies in the CD: *“Direct oil contrast lymphography, which is cumbersome and occasionally associated with minor and major complications, is usually reserved for complex conditions... Non-invasive duplex-Doppler studies and occasionally phlebography are useful for examining the deep venous system and supplement or complement the evaluation of extremity edema. Other diagnostic and investigational tools used to elucidate... MRI... CT... US... IL... and DEXA... IL and FM are best suited to depict initial and terminal lymphatics...”*

- It is most deplorable, that the authors of the CD ignore the international statistics which have been presented at the first Congress of the Society in 1966 by Köhler (3). Out of 16,501 oil contrast lymphographies 18 resulted in the death of patients – death is more than a “major complication” – the number of serious complications amounted to 198. In marked contrast to the view expressed in

the book “Diseases of the Lymphatics” (4), I regard oil contrast lymphography as absolutely contraindicated as a tool in the diagnosis of lymphedema!

- **Phlebography** is only used, if, based on duplex-Doppler studies, the decision concerning treatment of the phlebopathy really necessitates it.
- There is no difference between “initial” and “terminal” lymphatics; the terms are synonyms.
- US is important in the diagnosis of lymphangiomas, too!

10. According to the authors of the CD: *“Limb elevation is helpful to virtually all patients undergoing treatment.”*

This is not true in my opinion. **It is useless and without any effect in Stages II and III of lymphedema.**

11. Concerning massage in the CD: *“The first phase consists of skin care, light manual massage (manual lymph drainage), range of motion exercise and compression typically applied with multi-layered bandage-wrapping...”*

Due to the fact, that “massage” means *“the action of rubbing and pressing a person’s body with the hands”* (5), “manual massage” is false. In addition, “manual lymph drainage” and “light massage” are not synonyms.

12. Concerning Practitioners and devices: *“Prerequisites of successful combined physiotherapy are the availability of physicians (i.e., clinical lymphologists), nurses and therapists highly trained and educated in this method... Newer manufactured devices (e.g., CircAid, Reid sleeve) to assist in compression (i.e., pull on, velcro-assisted, quilted, etc.) may relieve some patients of the bandaging burden and perhaps facilitate compliance with the full treatment program. Some clinics find that patient self-care and risk reduction strategies help maintain edema reduction.”*

- Instead of “nurses and therapists,” “lymphedema therapists” has to be

written. In the homeland of MLD, nurses are not allowed to perform MLD.

- “Highly trained” is a nebulous concept. The qualification of the teachers, the curriculum and the duration of the courses, the regulations concerning exams, etc. have to be described.
- A scientific Society cannot state in a CD, that “*newer manufactured devices ... perhaps facilitate compliance.*” “Perhaps” means a pure guesswork. Either yes, or no, to be answered by the meta-analysis of studies.
- The formulation, that “*some clinics find that patient self-care and risk reduction strategies help maintain edema-reduction,*” falls into the same category. Although these are standard prerequisites of CDT, no up-to-date study exists which would have compared the long-term results of two homogenous groups of patients, one with a good and the other one with an inadequate compliance.

13. Concerning palliative care and spread of tumor cells by CDT in the CD: “*CDT may also be of use for palliation.... Theoretically, massage and mechanical compression could promote metastasis in this setting by mobilizing dormant tumor cells...*”

The view, that by mobilizing dormant tumor cells, for example by massage, metastases can be triggered, is obsolete. The ability to detach from the primary tumor mass, to invade nearby tissue and then metastasize, is acquired only by an elite few cells. These elite cells metastasize, regardless of whether they are pushed or not by massage. The molecular biological condition of dormant tumor cells is inappropriate for the formation of metastases.

14. Concerning Garments: “*...low stretch elastic garments... Preferably a physician should prescribe the compression garment to avoid inappropriate usage in a patient with medical contraindications such as arterial disease, painful postphlebotic syndrome or occult visceral neoplasia.*”

- The formulation “*preferably a physician should prescribe the compression garment*” reflects the situation in the USA and other areas of the World. In Germany, only the physician **is allowed** to prescribe them.
- “*Painful postphlebotic syndrome*” is by no means a contraindication for compression, quite to the contrary!

15. According to the CD: Classical massage “**may**” damage lymphatics. The much more drastic “*Tuyautage*” is only “**probably**” injurious to it. Such subjective points of view don’t belong in a CD.

16. According to the CD: “*Thermal Therapy...advocated by some practitioners in Europe and Asia... the role and value of thermotherapy in the management of lymphedema remain unclear.*”

Thermal therapy is described in an unjust manner. It has been used in China for centuries and has been introduced in modern Chinese medicine not by “some practitioners,” but by a distinguished professor of the Shanghai University. His papers are of top quality. Two distinguished members of the ISL, Fox and Olszewski — and not **some European** practitioners — have confirmed the results of Prof. Chang. **A careful meta-analysis of the literature is imperative!**

17. Concerning elevation: “*Simple elevation of a lymphedematous limb often reduces swelling particularly in the early stage of lymphedema.*”

The text is not correct. “*Simple elevation*” reduces swelling **only** in Stage I.

18. Concerning drug therapy in the CD: “*Diuretic agents are occasionally useful during the initial treatment phase of CPT.*”

Based on which studies does the CD declare that diuretic agents are “occasionally” useful? What is the numerical value of “occasionally”?

19. Concerning drug therapy in the CD: *“Benzopyrones. (oral benzopyrones), which are thought to hydrolyze tissue proteins ...role for benzopyrones (and related rutin and bioflavonoid compounds).”*

If the authors of the Document *“thought”* that *“benzopyrones hydrolyze tissue proteins,”* they went astray. They should read the paper of Piller (6). The formulation *“the exact role for benzopyrones and related rutin and bioflavonoid compounds”* shows, that the authors of the CD are not aware of the fact, that: 1) Rutin is a bioflavonoid and that 2) Bioflavonoids are benzopyrones!

20. Concerning Mesotherapy: *“The injection of hyaluronidase...is of unclear benefit.”*

What does *“unclear benefit”* mean? The CD should, by careful meta-analysis, comment on the quality of the published papers! Mesotherapy has no place whatsoever in the treatment of lymphedema!

21. Concerning Immunological therapy: *“boosting immunity by intraarterial injection of autologous lymphocytes is unclear.”*

The word *“unclear”* has no place in a CD. The authors have to describe the result of the meta-analysis of the pertinent literature!

22. Concerning fluid intake: *“Restricted fluid intake is not of demonstrated benefit. In chylous reflux syndromes... a diet low in long-chain triglycerides... is of benefit especially in children.”*

The sentence *“restricted fluid intake is not of demonstrated benefit”* is false. One should state, that **fluid intake has to be ad libitum!** The diet has to be **free** (not *“low”*) of long-chain fatty acids!

23. Concerning Operative treatment: This chapter should be started by calling attention to the fact, that two forms of indications for operative treatments exist, **relative** and **absolute (vital)** indications and that there is only one absolute indication for surgery in

lymphedema: angiosarcoma. All the other indications are relative.

24. Concerning debulking: *“Debulking is probably useful in treatment of advanced fibrosclerotic lymphedema (elephantiasis).”*

What does *“probably”* mean? The CD has to express a view which is based on the careful study of the literature! Is debulking useful? Yes or no! [Unfortunately, it is unavoidable in tropical countries of the *“third world”* and in those countries of the *“first world”* in which Social Security and health insurance companies refuse to pay for CDT. It is shocking to see Fig. 10.9 on page 185 in the book *“Diseases of the Lymphatics”* (4): Charles reducing operation is performed *“when the swelling on the dorsum of the foot is excessive.”* The swelling in this case can be abolished by *“Phase I”* of CDT.]

25. Concerning other operative procedures: *“Omental transposition, enteromesenteric bridge operations, and the implantation of tubes or threads to promote perilymphatic spaces (substitute lymphatics) have not shown long-term value.”*

This is a very slapdash approach to this important question. There is not a single word about mortality! The CD should explicitly warn against these methods, which, unfortunately, are described in detail in (4)!

26. Concerning liposuction: *“Liposuction has been reported successfully modified in specialized clinics to treat non-pitting, non-fibrotic upper extremity lymphedema... This operation should be performed by an experienced team of plastic surgeon, nurses and physiotherapists to obtain optimal outcomes.”*

I urge the authors of the CD to inform the Society, which are the *clinics* which have reported to have modified liposuction successfully! I am aware of only one such Clinic, namely that of Brorson!

How biased the Document is, demonstrates the fact, that its authors find the results of liposuction, based on the papers of

one single author, *encouraging*; the value of thermal therapy, which has been confirmed by two prominent authors, on the contrary is, for them *unclear*! This smacks of cronyism! The complications of liposuction are not mentioned at all!

Brorson's warning, not to use liposuction in the treatment of lymphedemas of the lower extremities, is not mentioned. The sentence "*This operation should be performed by an experienced team of plastic surgeons, nurses and physiotherapists to obtain optimal outcomes*" is useless. One has to believe in miracles to suppose, that a plastic surgeon or a dermatologist will regard himself inexperienced!

27. Concerning microsurgical procedures: "*This operative approach is designed to augment the rate of return of lymph to the blood circulation....*"

It should be mentioned, that approximately 250 million people suffer from lymphedema worldwide and that according to Olszewski less than 100 microsurgical operations are performed per annum!

28. Concerning microsurgical procedures: "*Experience with these procedures over the last 20 years suggests that improved and more lasting benefit is forthcoming if performed early in the course of lymphedema.*"

Personal experiences can't motivate a scientific Society, to express the view, that these methods are "*of more lasting benefit ... if performed early.*" Evidence based medicine necessitates a controlled-randomized long-term study: early cases; one group treated by some conservative method, the other by derivative surgery!

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