**Testo prima mail di Receck del 11-11-12**

Dear Dr. Ermini,

You asked in your message: ***I would like to ask to all that doesn't practice CHIVA …..WHY ?***

I send my answer privately to you, not through the Vasculab forum. There are two reasons for it: first, I appreciate the achievements of my friend Dr. Franceschi in the field of venous hemodynamics, and do not want to present my standpoint concerning CHIVA to a broad reading public without his consent; Claude is aware about my standpoint concerning CHIVA. The second reason is that we are able to effectively treat varicose vein disease (CHIVA is an effective procedure), but we are not able to heal it definitely; our treating methods do not differ qualitatively, they differ only in respect how effectively they are capable to delay recurrences.

*I was also supporter or the idea to abolish reflux at the SFJ and to preserve the GSV, bearing in mind the idea that it would fix the problem. Abolition of saphenous reflux in the groin brings the most substantial therapeutic effect; the other additional ligatures performed in the CHIVA procedure are of subprime importance; in that sense, crossectomy and CHIVA are very similar as concerns the therapeutic effect. I have documented the effect of crossectomy unequivocally by GS-plethysmoghraphy. Unfortunately, the excellent immediate hemodynamic effect deteriorates in the course of time due to recurrent reflux, and I saw that preserving the GSV in the thigh accelerates the process leading to recurrent reflux; that was confirmed in a lot of publications, and that reflects the reality.*

*Attached you find my answer to your question* ***WHY.***

*Kind regards,*

*C. Recek*

**Il testo nero è di Receck, il blu il mio , Risposta del 13-11-12**

**Dear Dr. Recek,**

**Here, answering your questions, I only wrote a summary of the hemodinamic concepts introduced by my teacher Claude and consequently developed over these 20 years.**

**I noted that you have an open mind and a vast experience in venous hemodynamics, which I think, you have acquired mostly with phlebographic studies.**

**More than an exchange of opinions by mail, the possibility of a discussion in a live demonstration would be very interesting.**

**Thank you for your private message.**

**Please feel free to make use of what I wrote as you deem best.**

**Regards**

**Stefano Ermini MD**

**What is the contribution of CHIVA to the treatment of varicose vein disease?**

CHIVA is a conception comprising evidenced haemodynamic elements; it opposed the generally acknowledged theory of incompetent calf perforators; it termed calf perforators ***“re-entry points”*** (i. e. mouth) of venous reflux irrespective of their size, in contrast to ***escapes points*** according to the theory of incompetent calf perforators that generally prevailed at that time.

This is demonstrated by the Perthes test and by the patterns of in-flow and out-flow in the perforator veins that we can easily check up with the DUS in combination with the dynamic tests of muscle pump activity.

The size of the re-entry perforators is effective to the retrograde diastolic flow rate ( that depends on the hydrodinamic energy and the muscle pump activity). During systole we can find an out-flow or an in-flow in relation to the pressure gradient in the deep veins and to the angle of inserction of the perforator , but during diastole we **always** have a gradient with a direction from the surface to the deep veins , and the flow is consequently a re-entry flow, independently from the valvular compentence of the perforator and from its size.

It stressed the effectiveness of saphenous reflux interruption at the saphenofemoral junction (at that time reflux through “incompetent calf perforators” was considered to be more important than reflux through the GSV).

The SFJ flush ligation interrupts the primary veno-venous shunt and fragments the hydrostatic column (you will see this concept further down)

On the other hand, it encompasses subjective opinions and erroneous perceptions, e.g. the so called “physiological drainage” of venous blood from the superficial thigh veins into the deep lower leg veins through the preserved incompetent saphenous remnant after high ligation.

I have some eco-doppler videoclips demonstrating that the draining function of an incompetent saphenous trunk in the thigh is as efficient as that of a competent saphena.

It uses unnecessary terminology describing fictive situations (closed and open shunts, moreover subdivided into subtypes, dynamic fractioning of hydrostatic pressure, vicarious circulation, unrealistic subdivision of the venous network in R1 - R4), which adds to additional confusion, and diverges in several points from the reality.

Which is the reality?

Every language or any other thing is complicated if unknown. If you study these, what is complicated becomes simpler.

The division of the network in N1 – N2- N3 – N4 , or R1 etc , N= network , R= reseau ( in French) , was described first by Marc Bailly , who in 1992 described the saphenous eye in an article published in the “Enciclopedie Medico Chirurgicale” , in French language, and after ( 2005?) confirmed by the anatomic findings of Alberto Caggiati. This, like all other situations that you have mentioned , are not “ unrealistic” situation, but ecographic evidence that everybody can see. Its only a problem of “eye”, like for mushroom picking.

If we are speaking about reflux, we must define: where is the source; where is the mouth; where is the reflux-carrying conduit connecting both points; we must be aware of the pressure difference evoking reflux.

The pressure difference is a “pressure gradient”( it’s a physical terminology, not a CHIVA terminology), and always we refer to the gradient when we define a shunt.

Source and mouth of reflux are well defined in CHIVA practice, and are stigmatized in the shunt’s classification.

A shunt is a private veno-venous circulation.

We consider open shunts and closed shunts:

1) A closed shunt is like the “private circulation” described by Bassi. It consists in an escape point (outflow), an incompetent venous axe, and a re-entry point ( inflow )

2) In an Open shunt we don’t have a private circulation like in the closed shunt, because there is not an escape point, but only an incompetent venous segment (i.e. the LSV) and a re-entry point. In this case the retrograde flow of the incompetent saphenous axe originates only from its physiological draining volume. Contrarily in the closed shunt the filling volume of the incompent LSV originates from the escape point and from the physiological draining flow.

Between a closed shunt and an open shunt there is an energy difference of the retrograde flow, and a consequent difference of the saphenous caliber , of the varice size and of the time of evolution of the varicose veins if not treated.

The disposition of the re-entry points can create 2 different situations:

1. The saphenous retrograde flow re-entry in the deep system by one or more perforators that origin directly from the saphenous axe . This is a “Shunt 1”
2. The retrograde flow, before its re-entry point, feed a tributary ( i.e. a visible varicose vein). This is a “Shunt 3”.

All these are DIASTOLIC shunts, because the retrograde flow occurs during the diastolic phase of the muscle pump activity. During an eco-color-doppler dynamic test, an incompetent saphenous trunk shows an antegrade sistolic flow of a short time and then a longer retrograde diastolic flow.

All these are pre-requirements to undestand how we can apply the CHIVA strategy, that consists in the fragmentation of the hydrostatic pressure and in the interruption of the veno-venous shunt, redirecting the blood from the surface to the depth ( an escape point is a compartment jump).

In an healthy subject the blood runs from the foot towards the heart and from surface to the depth. In a varicose subject it runs from the heart to the foot and in the escape points ( N1->N2 but also N2->N3) from the depth to the surface. After CHIVA it runs from the heart to the foot, but from the surface to the depht ( N3->N2->N1). The drainage function is preserved , the energy of the retrograde flow is reduced , etc.

CHIVA is a hemodinamic compromise between the suppression of the hydrostatic column , that reaches its maximum level with the suppression of the saphenous axe, and the preservation of the saphena draining function.

If this level of energy reduction of the retrograde flow after CHIVA leads to a physiologic restoration of the trasmural pressure and reduces wall stretching, all runs well.

CHIVA does not mention the pressure difference as the physical prerequisite triggering reflux;

Why not? I don’t undestand the sense of your critique.

it does not care for the magnitude of the pressure gradient;

The pressure gradient is evoked by the muscle pump activity and by the hydrodynamic energy of the system, that is directly proportional to the hydrostatic pressure, i.e to “H”, the height of the hydrostatic column.

it does not present a precise definition of reflux;

On the contrary. This concept is stressed by CHIVA; we work on 5 types of venous shunts with the subgroups, and each one of these is a definition of the “ reflux”.

moreover, it claims that there are different kinds of reflux, some of them are noxious, the others are benign, if not beneficial.

CHIVA considers the drainage of the remaining venous blood – after abolition of saphenous reflux at the saphenofemoral junction – through the preserved incompetent great saphenous remnant as a “beneficial reflux” or “deflux”, not realizing that it is a pathological reflux or recurrent reflux causing ambulatory venous hypertension.

The CHIVA strategy trasforms an high energy CLOSED shunt into a low energy OPEN shunt ( if this is not clear , please re-read the definition of closed and open shunt). This energy reduction ( volume x speed) of the retrograde flow leads to a normalization of the trans-mural pressure, and consequently to the reduction of the saphenous caliber and the healing of the complications. The disappearance of the visible varicose veins is in relation to the place of the re-entry point.

As previously specified, CHIVA trasforms an overloaded closed shunt into a low energy system that conserves the draining function of the saphenous axe and is not pathogenetic. This is confirmed by the low incidence of recurrences, as demonstrated by the RCTs.

CHIVA does not use nor defines the term ambulatory venous hypertension, which is a reality confirmed by direct venous pressure measurements and indirectly by plethysmography.

??? absolutely not !!!! this physical concept is the base of the CHIVA strategy , have you never heard one of Claude’s conferences? CHIVA is a cure of the ambulatory venous Hypertension, and its principles can be applied not only to the varicose veins but also to postphlebitic syndrome and to venous malformations.

We must realize that

1. drainage of venous blood from thigh veins into the lower leg veins does not occur under physiological conditions

The saphenous trunk in the thigh , and the related SFJ provides to the drainage of the arch tributary and to the drainage of the sub-cutaneous tissue. In a standing patient, the flow of the arch tributaries and a systolic antegrade flow evoked with a dynamic test can be easily verified. For the rest , in the normal saphenous trunk there is a sistolic antegrade flow and the only perforator of the trunk that is always open, is the SFJ.

Here <http://www.veneinforma.com/CH_Flussonellasafena.asp> you can see the different evolution of telangiectasia and reticolar vein in a woman with cellulite after stripping and after CHIVA, and this confirms the draining function of the saphenous axe in the thigh.

The saphena in the thigh is also very important to the evolution of varicose vein disease.

Do you have an idea of the different situation that we have after stripping and after Chiva if a new escape point occurs (like a new refluxing Hunter perforator or a SFJ recurrence , or a pelvic reflux point, new or forgotten ) ???

Watch this video clip (sorry, but it is in Italian , I’ll prepare another in English as soon as possible) <http://www.youtube.com/watch?v=Q8Z4W7JgDNo> .

1. reflux in varicose vein disease is a pathological centrifugal flow from the thigh veins into the deep lower leg veins through incompetent superficial veins OK
2. reflux causes ambulatory venous hypertension, the degree of which depends on its intensity.

OK

Air plethysmographic evaluation performed by Zamboni, himself a CHIVA proponent, showed that 3 years after the CHIVA procedure the intensity of recurrent reflux expressed in ml/s was nearly the same as the reflux value before surgery, which documented hemodynamic failure of the CHIVA method 3 years after the procedure.

I think that you are referring to this paper “Great saphenous varicose vein surgery without saphenofemoral junction disconnection”. This work demonstrates that the treatment of a type 3 shunt (incompetent SFJ -> Saphenous axe -> Tributary -> re-entry point -> deep veins ) with the only disconnection of the tributary from the saphenous axe, upon a 3 years follow, up presents a reflux recurrence in 85% of the cases. If you like I can send you the pdf of this publication.

 Principally, the results after CHIVA procedures have been assessed only by DUS, but unfortunately not, in addition, by air- or strain gauge plethysmography (the exception was the article by Zamboni et al.); therefore, the presented results do not reflect the real situation; ambulatory venous hypertension cannot be recorded and evaluated by DUS examination.

The excellent clinic results after CHIVA treatment are confirmed by the reduction of the saphenous axe caliber and by the control of the venous mapping after surgery procedure and in the following check-up.

The strain gauge plethismography only adds more data to the clinical and DUS evidence for misbelievers, but I agree with you that a study with this data can increase CHIVA credibility.

The therapeutic results after CHIVA comply with those after pure crossectomy; the main therapeutic effect is namely achieved by abolition of saphenous reflux at the saphenofemoral junction. The excellent hemodynamic results achieved immediately after abolition of saphenous reflux and confirmed by plethysmography deteriorate progressively in the follow-up due to recurrent reflux, which takes place in cases of CHIVA procedures mainly through persistent incompetent saphenous remnant;

I think that your reference is to the “ Crossectomy + phlebectomy” procedure. In this case I agree that the result after 3 years is worse than crossectomy and short stripping . This is well explained because 50% of the closed shunts are of type 3. In these cases , crossectomy + phlebectomy leads to the thrombosis of the saphenous axe . When the thrombosis is recanalized, the retrograde flow of this segment needs a re-entry point , if it is in a perforator all runs well, if it is in a tributary there is a recurrence, and this explains the bad result of this procedure.

therefore, the recurrent reflux is not forced to develop new superficial venous channels (in CHIVA terminology “vicarious circulation”), as is the case after ablative methods. Articles claiming that CHIVA procedures achieve better results than ablative methods are misleading; there is a lot of articles documenting that stripping the GSM gives better long-term results than preservation of incompetent GSV in the thigh.

I am not a bookworm, but as I previously mentioned, I agree with you in regards to the bad results of the aforementioned crossectomy + phlebectomy, that is a conservative but not hemodinamic technique: it is not CHIVA. The CHIVA strategy is different from crossectomy + phlebectomy.

For CHIVA the scientific evidence is different and is demonstrated well in the Cochrane review that will be online before the end of year.

Risposta Recek del 13-11-12

Dear Dr. Ermini,

Thanks for your reply; you have presented a lot of opinions that I cannot leave unanswered.

1) As to the flow in calf perforators during muscle contraction you stated: *During systole we can find an out-flow or an in-flow in relation to the pressure gradient in the deep veins and to the angle of inserction of the perforator.* I have performed simultaneous pressure measurements in the PTV and GSV. Although the pressure curves were very similar, there was a peak systolic pressure difference of about 13 mm Hg with invariably higher pressure in the PTV and lower pressure in the GSV. Similar results were presented by Arnoldi. Summarizing: during muscle contraction the pressure in the PTV is always higher than in the GSV; the venous blood can flow only from deep the superficial veins within lower leg perforators, not in the reverse direction. The pressure during calf muscle contraction is created in the deep, not in the superficial veins; it is transmitted from the deep into the superficial veins.

2) As to the fragmentation of the hydrostatic pressure: By which type of pressure measurement was the term verified? Which are the particular pressure values documenting the *fragmentation of hydrostatic pressure?* I find the term inappropriate, freely contrived, not reflecting the reality. Interruption of saphenous reflux in the groin removes even the severest hemodynamic disturbance and restores physiological hemodynamic conditions because it removes ambulatory venous hypertension, not because of a fictional fragmentation of hydrostatic pressure (see attached figure).

3) You asked: Which is the reality? See the definitions of some hemodynamic phenomena I presented in a previous Vasculab message; this is the reality. Drainage of venous blood from the thigh into the lower leg does not occur under physiological conditions, it is a pathological phenomenon causing ambulatory venous hypertension. That has been unequivocally confirmed by venous pressure measurements and by plethysmography; this is the reality.

4) A closed shunt is a fictive imagination of the following closed (vicious) circle of venous blood flow in incompetent GSV: deep lower leg veins – popliteal, femoral vein – incompetent SFJ – incompetetent GSV – calf perforators – deep lower leg veins. In reality, an effective reflux can arise only as follows: iliac veins (which are incompetent in varicose vein disease) – incompetent SFJ – incompetent GSV – calf perforators – deep lower leg veins. I have explained this order of events in one of my previous messages about one year ago.

5) Your reaction on my statement *CHIVA does not mention the pressure difference as the physical prerequisite triggering reflux* was Why not? I don’t undestand the sense of your critique. My question: Who of the CHIVA proponents measured and presented the precise value of the pressure gradient causing reflux?

I have measure it; it has a value of 37,4 +- 6,4 mm Hg, and I have called it ***ambulatory pressure gradient***, because it arises during calf pump activity.

6) As to the definition of reflux: please take note of the following definition which is the result of precise venous pressure measurements, and forget all fictional, unrealistically contrived imaginations.

***Venous reflux in the lower extremity is a centrifugal flow of blood within an incompetent venous channel connecting both poles of the ambulatory pressure gradient. The higher pole of the ambulatory pressure gradient lies in the thigh or iliac veins,* *the lower pole in the deep* *lower leg veins.* *Reflux takes place during relaxation of the calf musculature and stops as soon as the ambulatory pressure gradient is equalized. It* *causes ambulatory venous hypertension, the degree of which depends on the intensity of centrifugal* *flow expressed in ml/s.***

7) You said: ***The saphenous trunk in the thigh , and the related SFJ provides to the drainage of the arch tributary and to the drainage of the sub-cutaneous tissue.*** This is even the main problem of the CHIVA procedure. A procedure which deliberately intends to preserve drainage of venous blood from the incompetent superficial thigh veins into the deep lower leg veins is a false one, because it deliberately aims to produce ambulatory venous hypertension. As such it should be discarded. Unfortunately we are not able to hinder the occurrence of recurrent reflux taking place in the described way, but we should not claim that the purpose of our therapeutic procedure is to produce a pathological situation. That is also the reality.

8) Of course, I have the publication by Zamboni. Attached is a figure from his paper showing the results of air plethysmography he performed. Zamboni mentioned significant improvement of the venous filling index (which quantifies reflux intensity in ml/s) occurring 6 months after the procedure, but omitted to mention that 3 years after the CHIVA procedure the value of venous filling index was nearly the same as before the procedure. I find it non-serious; he deliberately omitted to hint at the fact that this finding documents the hemodynamic failure of the CHIVA method.

9) I disagree with you as concerns the importance of plethysmographic methods. They are very worthwhile for quantifying the hemodynamic disorders and for assessing the impact of the ambulatory venous hypertension; it that sense, the results of air- or strain gauge plethysmography correspond with direct venous pressure measurements. Therefore, their results would not support the credibility of CHIVA, they would show (as Zamboni´s paper really did) its hemodynamic failure occurring during the follow-up.

10) I did not talk about crossectomy + phlebectomy, I spoke about pure crossectomy. The saphenous remnant only rarely thromboses after crossectomy; I found that it remained patent and incompetent in 81,5% of cases 4 years after operation. It is the main channel providing for recurrent reflux and for ambulatory venous hypertension. The main difference between my crossectomy and CHIVA is that for CHIVA proponents patent and incompetent GSV remnant in the thigh enabling drainage of venous blood into the deep lower leg veins is the therapeutic goal, for me it was an untoward effect.

You have once mentioned Einstein´s statement: ***It is easier to split the atomic nucleus than a prejudice.*** This statement is applicable to the CHIVA proponents. And I would add: Scientific arguments are ineffective when confronted with firm creed in fictional or religious imaginations. CHIVA resembles a religion with a lot of contrived steadfast dogmas.

Please bear in mind: Any assertion that claims to be factual has meaning only if it is possible to say how it can be verified. You spoke about *fractioning of the hydrostatic pressure* (how did you measure it?), *suppression of the hydrostatic column, that reaches its maximum level with the suppression of the saphenous axe, level of energy reduction* (how did you measure the energy reduction, in which units?), *the retrograde flow after CHIVA leads to a physiologic restoration of the trasmural pressure* (how did you confirm physiological restoration of the transmural pressure?) *and reduces wall stretching* (in which units did you measure it?) *all runs well.* Which are the values of the fractionated hydrostatic pressure, energy reduction, change of transmural pressure and so on you are speaking of? Please do not use terms which are not clearly defined, which have not been precisely measured, and which do not reflect the reality. Otherwise we cannot find a common language.

Regards,

C. Recek

Inizio riposta del 14-11-12

Dear Dr. Receck,

let’s me “talk turchey”:

1. CHIVA is not a cult of visionaries and Claude is not its guru.
2. The RCTs and the Cochrane’s review are not comics wrotten by members of this cult.
3. I have ONLY experience of DUS, and not of phlebography and direct measure of the venous pressure, that in my office, but also in the Italian University, is difficult to do for the patient compliance.
4. I try to understand your point of view, because I well know that you are not a visionary, but you must to do the same think with me, contrarly we both lost our time.