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Role of Diabetologist in Evaluating Diabetic Retinopathy

Nathan et al. (1) compared the accuracy of ophthalmologists with diabetologists in screening for diabetic retinopathy with seven-field color stereoscopic fundus photography. Although we agree with the final conclusion of this study that well-trained diabetologists can make ophthalmology referral decisions, we found the methodology and some results worthy of remark.

Nathan et al. compared two different examination methods. The diabetologists used direct ophthalmoscopy through undilated pupils, and the opthalmologists used indirect ophthalmoscopy through dilated pupils with only occasional use of slit-lamp biomicroscopy. Indirect ophthalmoscopy gives a small magnification (20 dpt × 3) and is not sensitive enough to detect subtle diabetic lesions such as microaneurysms, small hemorrhages, and early new vessels. To screen effectively, it is therefore essential to perform direct ophthalmoscopy or slit-lamp biomicroscopy through a dilated pupil. The predominant use of indirect ophthalmoscopy in the study explains the poor results of the ophthalmologists. Moss et al. (2) showed that ophthalmologists using indirect supplemented with direct ophthalmoscopy concurred with seven-field color stereoscopic fundus photography 85.7% of the time, significantly better than in the study by Nathan et al.

We were disappointed by the decision of Nathan et al. not to dilate the pupil before direct ophthalmoscopy. Klein et al. (3) found this to be both an insensitive and nonspecific method. Even when pupillary dilation was used, Sussmann et al. (4) found a serious error rate of ~50% for diabetologists.

The impression from these studies is that if diabetologists make ophthalmology referral decisions for their patients, appropriate training is indispensable. If this is not guaranteed, regular detailed examination by an ophthalmologist is necessary.

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Patient-Oriented Educational Material on Diabetes

In diabetes, much of the success of treatment depends on patient education. Therefore, educational material must be oriented toward the average patient's ability to understand sometimes complicated medical concepts. The following is offered as an example of **p**atient-**o**riented **e**ducational **m**aterial (POEM) that patients and professionals alike may find both comprehensive and comprehensible.

I

Diabetes has two forms,
(Exceptions can defeat the norms)
The one's acute and in a child,
The other initially seems mild,
Its onset in adults is stealthy,
Though the patient feels quite healthy,
Till the sugar in the blood
Has started up a urine flood
That courses in the night at first,
And then all day. A nagging thirst
So difficult to satisfy,
Can leave you feeling limp and dry.
Although there's sugar in excess,
The cells are starving nonetheless.
And so you eat a lot and still
You're hungry, weak, fatigued, and ill.
Infections such as furuncles

And even deadly carbuncles,
Can be a frequent consequence
Of ignorance and negligence.

II

You get it if you have the gene,
But often not if you stay lean:
Developing obesity
Will amplify heredity.
Resistance is a key defect
That hampers insulin's effect,
And makes your body compensate
For having all that extra weight,
By putting out more insulin
Than you would need if you were thin.
The compensation fails with time
And sugar levels start to climb
When islet cells get tired and
Exhausted with increased demand.
So these are then the reasons why
The sugar in the blood is high.

III

The cornerstone of therapy
Is diet, it is plain to see
So if you do as you are told,
And with your diet, have controlled
Your every desperate, gnawing urge
To go ahead and cheat, or splurge
On things you know you shouldn't eat,
Like anything that's rich, or sweet,
The extra pounds will melt away.
(You view the prospect with dismay,
Since dieting for all you're worth,
It seems, will not affect your girth!)
But rest assured its worth the pain,
Reversing that relentless gain,
Since losing any excess weight
Improves the diabetic state,
And higher sugars you've endured,
Can normalize: you may be "cured"!

IV

But sometimes when the diet's not
Effective, then your doctor's got
The option of a pill or two
To put you on, see how you do.
And often it is worth a try,
For many can and do get by.
However, when it's not enough
To keep your sugar up-to-snuff
Then insulin is what you need,
But notwithstanding, must pay heed
To diet and to calories,
Or else, you'll just get more obese
Less sensitive to insulin,
And need yet more; you cannot win,
For if your diet's uncontrolled,
Your sugars will not ever hold.
So you can see it's just the same
As pouring fuel on a flame
That you are trying to control:
It then becomes a hopeless goal.
A proper diet's thus the key
To every form of therapy.

V

In patients of more tender years,
Their insulin just disappears.
A virus, and genetics may
Result (from complex interplay)
In self-destruction from within,
Of cells producing insulin.
And once this process has begun,
The beta cells go one-by-one,
Until there aren't any left,
And so the patient is bereft
Of insulin, and then the course is
One of ketoacidosis.
Patients can be quite unwell,
At times in coma, with the smell
Of acetone upon the breath.
It sometimes even leads to death!
So urgent treatment must begin
With i.v. fluids, insulin.
When things are better, you expect
That you'll be able to correct
The insulin deficiency
From islet insufficiency,
So shots of insulin will be
An absolute necessity.

VI

Though each appears at first to be
An independent entity,
They share the sugar in excess
In blood, and thus they both progress
With complications that arise,
Like hemorrhages in the eyes.
Blood vessels harden to invoke
A silent heart attack, or stroke,
Resulting in paralysis.
Your kidneys need dialysis,
Which adds to all your other woes,
Like painful nerves and ulcered toes.
The sugar in the blood's the key
To future disability.
To keep it under good control,
And forestall this, must be the goal.

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