

Gøtzsche P. Niels Finsen's treatment for lupus vulgaris

Commentary on: Finsen NR (1896). Om Anvendelse i Medicinen af koncentrerede kemiske Lysstraaaler.

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Niels Ryberg Finsen was born 1860 in Thorshavn, Faroe Islands, and died in 1904. He was awarded the [Nobel Prize in 1903](#) "in recognition of his contribution to the treatment of diseases, especially lupus vulgaris, with concentrated light radiation, whereby he has opened a new avenue for medical science".

Finsen communicated his preliminary results of the use of 'the chemical rays of light' in 1896 (Finsen 1896). It was already known at the time that light could have a bactericidal effect. In addition, lay people, alternative practitioners, and possibly one doctor had reported a positive effect of concentrated sunlight on cutaneous tuberculosis (lupus vulgaris). Two patients had also been treated by electric light.

Finsen criticised these reports, suggesting that the light exposure was far too brief to have had any effect, and because the methods used depended on the burning effect of light, which caused substantial adverse effects. He experimented with different light fractions and discovered that the effect was related to the short wave spectrum.

Finsen used a standard bacterium, *M. prodigiosus*, for most of his experiments, but also experimented with typhoid and anthrax. He found out how far light rays penetrated into tissues, showed that the bactericidal effect was related to the concentration of the light, and discovered that blood hindered penetration. He developed equipment that concentrated light 15 times and could be used to treat affected areas of about 2 cm in diameter at a time, and he developed devices to apply pressure to prevent blood from entering the areas being treated.

His 1896 report contains details on 11 patients, who had had lupus vulgaris for between five and 21 years, and whom he had treated for two hours daily for several weeks on the same spot. He acknowledged that 11 cases was not a large sample, but noted that as the treatment was local, the effect in one and the same patient could be noted ten times or more.

Finsen established a centre for administering his treatment. He noted that patients with lupus vulgaris were socially very isolated and had difficulty finding work because of their appearance, particularly because the disease usually affected the face. Since most of his patients were poor, his centre was supported by sponsors and by the municipality of Copenhagen, and a charity was established for the patients.

Six years later, at a meeting in Berlin for the members of the International Central Bureau for Eradication of Tuberculosis, Finsen presented the results of treating 804 patients (Finsen 1902a). He noted that, apart from a few patients whose condition he judged to be hopeless, his report covered all the patients who had come to his centre. His results were:

I. Cured	412
a) No recurrence during 2-6 years	124
b) Observation time less than 2 years	288
II. Nearly cured (insignificant residual disease)	192
III. Currently being treated	117
a) Significantly improved/partially cured	91

b) Poor/temporary improvement	26
IV. Interrupted treatment (unfulfilled cure)	83
a) Unsatisfactory result	16
b) Dead (31), suffering from other serious diseases (13)	44
c) Absent for reasons irrelevant to the disease	23
Total	804

He excluded 67 cases in groups IVb and IVc and noted that 695 (94%) of the remaining 737 cases were responding favourably to treatment. He also noted that results as good as his might not be achieved elsewhere because equipment and lamps inferior to those used in his institute had recently been introduced into the market.

In another publication the same year (Finsen 1902b), Finsen observed that some people may have seen some of his investigations as superfluous, since the facts about light treatment for lupus vulgaris were already known. He argued that he had had to do his own studies because he was unable to confirm some previously reported results. By using ultraviolet rays, he avoided burning and scarring the skin without losing the bactericidal effect of the treatments, and he constructed crystal rather than glass lenses.

The following year, upon receiving the Nobel prize for his work, Finsen said "The supreme qualities of all science are honesty, reliability, and sober, healthy criticism".

References

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See also:

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