STUDY OF THE ETIOLOGY OF RENAL FAILURE AMONG DIALYSIS PATIENTS

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BY DOCTOR:-

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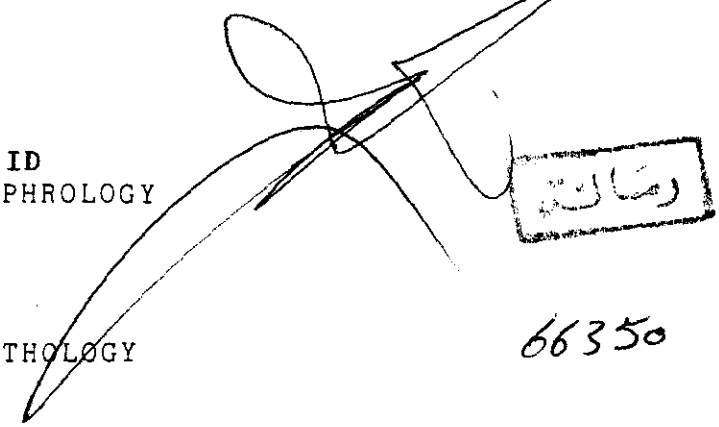

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INTRODUCTION

Normally, the kidney serve to excrete metabolic waste products, largely derived from the intake of food (proteins) and minerals (eg salts), but also from normal turnover of body cells. They regulate accurately the amount and composition of the body fluids (i.e. the amounts and relative concentration of water, salt, acid and buffers). The kidney has also important endocrime functions with regard to blood pressure regulation, bone narrow functions, bone composition and turnover.

Many of the diseases which affect the kidney lead to renal failure. "Primary" kidney diseases i.e. those involving only the kidney or urinary syst. are the most frequent causes of renal destruction, accounting for more than 80% of patients treated by chronic haemodialysis, GN resp. for 32.7% and PN 20.9% cystic Dis 9.2%

Renal Vasc. 8.3%	Multisyst. 8.5%
Drug nephr. 3%	Heriditory 2.8%
Undet. 10.5% other 4.2%	

In kidney failure all of its function are affected and when this failure is severe, the condition is fatal unless replacement therapy is done.

Aim of work:-

Is to study the etiology of chronic renal failure among about 200 dialysis patients from 3 hospitals and 3 limited care centres of dialysis because the aetiology of renal failure is not important only from the academic point of view; but also from the preventive point of view, as some of the causes of renal failure are reversible. In addition it is interesting that a changing pattern of the causes of renal failure is sometimes observed e.g. the remarkably increase in the incidence of diabetic nephropathy as a cause of renal failure among dialysis patients, which has been observed in recent years.

Glomerulonephritis [GN]

Acute Glomerulonephrites [AGN]

Acute GN or the acute nephritic syndrome is a clinical pattern characterised by a relatively abrupt onset of variable degrees of haematuria, proteinuria, decreased glomerular filtration rate, sodium Na and fluid retention, circulatory congestion, hypertension and occasionally oliguria. Patients presenting with acute GN often will have some evidence of a recent infection of the pharynx or the skin or both with a group A,B-haemolytic strephococcus [Lewy, J.E., 1971].

Poststrepto coccal Glomerulonephritis [PSGN]

In the early part of the 20th centry Richard Bright had clearly established the relationship of acute nephritis to infection with group A, B-haemolytic streptococci [Glassock, R.J. 1986]. The classic studies of Rammelkamp and Co-workers clearly showed that only certain strains of the group A streptococcus in particularly type 12, were capable of evoking nephritis. [Rammelkamp, C.H. etal 1953]. It is now recognized that in addition to type 12, many other types, including 1, 2,

3, 4, 18, 25, 49, 55, 57 & 60 are potentially nephritogenic. In addition type 31, 52, 56, 59 and 61 are suspected to be nephritogenic [Rodriguez-Iturbe, Betal 1981]. In addition it may also on occasion be associated with non-Group A streptococcal infection particularly group C [streptococcus Zoepidemicus] [Barnham, M. etal, 1983]. One such antigen derived from cell membranes, and called endostrephosin by Lange and Coworkers, may will be the responsible nephritogenic antigen and it is present in both Group A and C streptoccocci [Lange, K., etal 1983]. A broad range of severity of the disease exists, from entirely asymptomatic cases detected by the incidental finding of microscopic haematuria to oliguric acute renal failure [Ferrario, F., 1983]. A latent period between the onset of recognizable streptococcal infection and the first manifestation of nephritis is usually present, averaging about 10 days to three weeks. [Sagel, I., 1973]. Oliguria and gross haematuria with a smoky or rusty appearance to the urine are commonly reported by the patient. Anuria is relatively infrequent and when present for more than a few days indicate the development of crescentic glomerulorephritis. Dysuria may be present in cases with severe haematuria. Haematuria is microscopic in as many as 2/3 of cases. Some degree of oedema and hypertension is found in over 75% of cases. Typically the oedema involves the face, eyelids and hands and is notably worse upon first rising. [Lewy, J.E., 1971].

By L/M the glomeruli are bloodless, hypercellular and enlarged and they fill Bowman's space. The capillary lumina are occluded by proliferating mesangial and endothelial cells. [Baldwin, D.S., 1974].

By E/M the most characteristic and constant finding is the presence of discrete election dense, dome-shaped deposits projecting outward from the epithelial side of the basement membrane called "humps". [Fish, A.J., 1970]

By Immunofluorescence, three patterns are observed, designated:-

a- Starry-sky pattern observed in 30% of renal biopsies and observed during the 1st 2 weeks of the illness.

b- Mesangial pattern is seen in about 45% of renal biopsies and it is seen in younger persons and is associated with a favourable long term prognosis.

c- The garland pattern is seen in about 25% of renal biopsies and is more frequently seen in males and it may be indicative of a poor longterm prognosis. [Velhote, V., 1986].

It would appear that ultimate recovery from sporadic acute PSGN in adults is less predictable than that in children, [Melby, P.C., Musick, W.D., Luger, A.M., and Khana, R 1987] especially when associated with initially severe impairment of renal function, persistent proteinuria, or nephrotic syndrome. [Melby P.C 1987]. For some patients carrying the diagnosis of chronic sclerosing glomerulonephritis who present in end-stage renal failure, the disease may have been initiated by a episode of acute PSGN. The long-term prognosis of FSGN was found to be relatively good, only 10% of cases developed terminal renal failure or died from the complication of the renal disease within 5 years. [Selingson, G., 1985].

Rapidly Progressive Glomerulo nephritis

[Idiopathic diffuse Crescentic glomerulo nephritis]

Rapidly progressive glomerulo nephritis describes a nephritic syndrome that is more common after the third decade of life and has a clinical presentation similar to that of acute postinfections GN, and is characterised by extensive formation of glomerular crescents in 50-70% of glomeruli. The major clinical distinction is that RPGN displays a rapid (<6 months) progression to end stage renal failure. Serum complement levels are normal, a fact that helps in the early distinction of this syndrome from postinfectous or SLE nephritis.

Three categories of RPGN have been identified based on the distinctive histopathology and serology of each variety, Type I, Type II, Type III. In Type I the patient tend to be young or middle age and male although more older persons and females are being. The onset occasionally may be abrupt and in many respects resembles acute glomerulonephritis except that severe oliguria or even anuria is more common [Wilson, C.B., 1973]. The outlook for recovery in Type I is poor unless treatment is instituted early in the course of the disease. A poor prognosis is indicated when any of the following are present:

1- Universal glomerular involvement with circumferential crescents.
2- Severe tubular atrophy and interstitial fibrosis with or without arterionephrosclerosis.
3- Extensive glomerular fibrosis and organisation of Crescents [Savage, C.O.S., 1986].

In absence of therapy, the majority of patients with idiopathic crescentic GN Type I will progress to irreversible end-stage renal failure requiring dialysis support and / or transplantion [Peter, D.K etal 1982].

In Type II the patient tend to be middle aged or older and no sex predominance is observed but constitutional symptoms are common [Beaufils, H., 1976]. Although without therapy most patients will progress to end stage renal disease, incontradistinction to type I there is a tendency for spontaneous improvment particularly in cases with less severe crescentic involvement. [Couser,W.G 1988] Type III is classified as a separate type on the basis of the absence of Ig deposits, thus suggesting a non-immunologic or a cell-medicated basis of the disease [Salant, D.J 1987]. It tend to involve middle-aged and older patients with a predilection for males. Constitutional symptoms are common and many cases have manifestations suggestive of a systemic vasculitis. [Glassock, Adler and Cohen 1986]. Type III may at times be associated with a favourable outcome even in the absence of specific therapy so long as occult multisystem disease and irreversible glomerular and / or tubulointerslitial lesions are absent. Late occurence of progressive renal failure and heavy proteinuria may be seen if patients are treated after severe glomerular disease has already developed [Flores, J.C., 1986].

Membranous Glomerulonephritis

Membranous GN is the most common cause of nephrotic syndrome in adults. It accounts for about 50% of adult cases. It has a peak incidence in the 5th decade and is not common in children. The disease may be detected as asymptomatic proteinuria, but as many as 80% of patients present with massive proteinuria and the nephrotic syndrome. While the majority of patients with membranous nephropathy present with the nephrotic syndrome, spontaneous complete remissions of proteinuria occur in about 25% of cases and partial remission in a similar number. However most of the patients will progress to end-stage renal failure by 10 years.[Thomas E Andreoli, Charles C.J. Carpenter 1990]

There are 2 different views concerning the prognosis of MGN. Erwin et al [1973] described progressive deterioration in renal function in 40% with terminal renal failure in 25%. An even worse outcome was seen by [Franklin et al 1973] with terminal renal failure occuring in 45% [Row et al 1975] described 16% developing terminal renal failure and a similar number with reduced renal failure, 10 y survival however was 55% [Davison et al 1984 and Mactier et al 1986] analyzed untreated patients in the United Kingdom & found deterioration in function in half of these patients. Terminal renal failure was seen in 30% of patients in the series of Tu etal 1984 from the United States & a recent Italian series described a 44% incidence of chronic renal failure or renal death in their untreated patients [Zucchelli et al 1987]