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REFERENCES


Cardiac Arrhythmias in Acute and Chronic Renal Failure

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Cardiac arrhythmias are frequent complications in acute and chronic renal failure but the exact incidence of arrhythmias remain the subject of considerable debate.

Cardiac arrhythmias are mostly of supra-ventricular tachycardia, paroxysmal auricular premature contraction, auricular tachycardia and auricular fibrillation which may occur at any stage of the course of the disease, if B.U.N. remains elevated for a long period of time.

In many instances some specific causative factors can be found, among those, electrolyte imbalances, sustained hypertension, focal degeneration of myocardium, pericarditis, and digitalisation appear to be the most potentially dangerous cause of arrhythmias.

We have therefore studied cardiac arrhythmias in series of patients with acute and chronic renal failure of varying etiology with the purpose of identifying the incidence and most common causes of these arrhythmias.

Twenty patients (8 with acute renal failure and 12 with chronic renal failure) were the subject of our studies.

The evaluation of cardiac arrhythmias was supported by appropriate physical examination, serial E.C.G. and chest X rays, daily determination of electrolytes and cardiac muscle biopsy or post mortem examination of the heart of the patients immediately after death.

In our series of patients, the following causes were held responsible for their cardiac arrhythmias:

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1. Persistent superimposed infection which were quite common in our patients.
2. Hyperkalemia, Acidosis, anemia and sustained hypertension.
3. Electrolytes imbalances.
4. Digitalization of the patients for their cardiac failure.
5. Focal Degeneration of myocardium which existed in all of our patients.

In brief, we discuss 6 of our patients with acute and chronic renal failure who died immediately after their cardiac arrhythmias supervened and we were able to perform post mortem examinations. The rest survived with immediate ouabain therapy and other therapeutic measures.

Case No. 1: Miss Z.A. a 13 years old girl was first admitted in April 1966 in complete anuria 24 hours after she ingested some amount of unknown toxic material in a suicidal attempt.

On physical and laboratory examinations: a soft systolic mur mur was heard on mitral area, B. P. was 165/58 mm Hg. Her B.U.N. was reported 6.5 Gm/Lit and Na: 141 mEq., K: 6mEq., Ca: 7.5 mGm%, P: 4.3mGm% and CO2: 13 mEq.

Patient's urine examination contained trace of albumin and granular and hyaline casts. Chest X-ray demonstrated enlarged heart in all diameters.

Peritoneal dialysis was carried out and successful corrections of electrolytes imbalances and B.U.N. was obtained.

On the ninth day of her hospitalization, B.U.N. arrose to 7 Gm/Lit and patient developed auricular fibrillation confirmed by E.C.G. Patient expired 24 hours later in spite of immediate ouabain therapy.

Pathology: Cardiac muscle biopsy revealed: Areas of focal degeneration of myocardium.

Case No. 2: Mr. E. M. a 32 years old male developed sudden onset of acute renal failure with unknown etiology in March 28, 1966, and was immediately sent to our service after being in anuria for 48 hours.

On physical and laboratory examinations, a grade I systolic mur mur was heard on the apex of the heart. His B.P. was 180/110 mmHg. Eye ground revealed vast areas of hemorrhage of the retina. His B.U.N. was reported 5.6 Gm/Lit. Na: 152 mEq., K: 7.5 mEq., Ca: 8.5 mgm%, P: 4.8 mgm% and CO2: 11 mEq. Immediate peritoneal dialysis was carried out for 36 hours. B.U.N. dropped to 3.5 Gm/Lit. and electrolytes were reported approximately within normal limits after the completion of dialysis.

On the fourth day of his hospitalization, he developed high fever and was treated with broad espectrum antibiotics, his B.U.N. soon reached 6.5 Gm/Lit and second peritoneal dialysis was carried out. A week later, he again developed fever, pericardial friction rub and supra.ventricular tachycardia. Ouabain was soon administered and marked improvement was achieved within 24 hours. A week later patient developed sudden onset of massive gastro-intestinal hemorrhage and became comatos and died on the following day.

Pathology: Post mortem examination of the heart revealed:
1. Areas of fibrinous pericarditis.
2. Left ventricular hypertrophy.
3. Focal degeneration of myocardium.

Case No. 3: Mrs. Z.M. a 26 year old female was first admitted to our hospital in acute renal failure 36 hours after having a septic abortion.

On physical and laboratory examinations, a soft functional systolic mur mur was heard on the apex of the heart and sinus tachycardia was detected on E.C.G. B.P.; 180/113 and eye ground was reported normal.

Peritoneal dialysis was carried out immediately for 48 hours because of B.U.N. was 7.5 Gm/Lit. Ca: 7.2 mGm%, P: 4.5 mGm%, K: 6.35 mEq. Na: 137 mEq. and CO2: 13 mEq. On the 7th day of hospitalization, E.C.G. revealed L.V.H. and on the ninth day, B.P. dropped to 155/65 mmHg. and protodiastolic gallop was noted on cardiac auscultation. Ouabain was administered immediately and all symptoms temporarily disappeared within 24 hours, and B. P. remained stable around 130/60 mmHg.

On the 11th day, patient developed attacks of generalized seizures due to cerebral edema and died.
Pathology: Post mortem examination of the heart revealed:
1. Enlarged heart mostly on the left side.
2. Focal degeneration of myocardium.
3. Pericarditis. (Fibrinous).

Case No. 4: Mrs. N.Kh, a 34 years old house wife who was known to be a case of chronic nephritis for the past 8 years was admitted with marked anemia and poor general condition.

On physical and laboratory examinations, B.P. was 220/120 mmHg. Hb: 6%, Hct: 16%, B.U.N. 60 mgm%, Na:152mEq., Ca: 6,3mgm%, Mg:6,8 mgm%, CO2: 10mEq. E.C.G. on admission revealed sinus tachycardia and L.V.H. with occasional premature contractions. On cardiac auscultation, a marked friction rub was noted. Because of poor general condition of the patient, peritoneal dialysis was suggested but was refused by relatives of the patient.

On the same evening, patient developed pulmonary edema which was treated with immediate digitalization. On the sixth day of her admission, she developed massive hematemesis and E.C.G. revealed auricular flutter-fibrillation. Patient expired on the following day.

Pathology: Post mortem examination of the heart revealed:
1. Pericarditis.
2. Cardiac hypertrophy.
3. Edema of myocardium and areas of focal degeneration of myocardium.

Case No. 5: Mr. E.A. a 22 years old male who developed sudden onset of acute nephritis due to unknown etiology was admitted to our service on June 5,1966 ten days after the onset of his illness.

On physical and laboratory examinations: B.U.N. was 6,5 Gm/Lit and Na: 142mEq., K: 4,5mEq., Ca: 7,8mgm% and CO2: 10mEq. Urine contained trace of albumin with a few W.B.C., R.B.C. and hyalin casts. E.C.G. revealed sinus tachycardia and on cardiac auscultation, a soft systolic murmur was heard. B.P. was revealed: 195/112 mmHg.

During a month of his hospitalization, he was under treatment with peritoneal dialysis. B.U.N. raised to 6Gm/Lit and patient went into a deep coma. E.C.G. revealed L.V.H. and ventricular premature contractions. Patient died 2 days later.

Pathology: Post mortem examination of the heart revealed:
1. Uremic pericarditis.
2. Cardiac hypertrophy.
3. Edema and focal degeneration of myocardium.

Case No. 6: Miss M.K. a 14 years old female was admitted to our service in a semi-comatous state. She was known to have been suffering from subacute glomerulonephritis, for the past four years.

On physical and laboratory examinations: her B.U.N. was 4,5 Gm/Lit and Na: 155 mEq., K: 4,2mEq., Ca: 8mgm%, Mg: 5,2mgm% and CO2: 10mEq. B.P. was 160/80 mmHg, and a soft systolic murmur was heard on mitral area. E.C.G. revealed sinus tachycardia. Patient's relatives refused to have peritoneal dialysis done and therefore, symptomatic treatment was carried out for 22 days. On the night of her 23rd day of admission, she developed generalized seizures. Eye ground reveal papille edema. Soon she developed complete arrhythmia with multi-focal extrasystole, and died 2 days later.

Pathology: post mortem examination of the heart revealed:
1. L. V. H.
2. Areas of focal degeneration of myocardium,

Comment and Discussion

Cardiac arrhythmias are frequent complication in acute and chronic renal failure. These arrhythmias are of the type of supra-ventricular tachycardia, particular, paroxismal auricular tachycardia and fibrillation and may well account for sudden unexplained deaths in patients who appear to have been doing well. Acidosis, high blood urea nitrogen, anemia, sustained hypertension, infection, focal degeneration of myocardium and changes in the ionic composition of the extracellular fluid, with their consequence on the response to digitalis appear to be responsible.

In spite of what appears in literature, focal degeneration in uremia is the most potentially dangerous cause of arrhythmias and death due to cardiac arrhythmias in uremic patients.

Intra-venous route of digitalis administration should be avoided in patients with acute and chronic renal failure who developed cardiac failures, pulmonary edema, or arrhythmias since they appear to be potentially dangerous, and will initiate or aggravate cardiac arrhythmias.

we suggest, in emergency instances, ouabain to be used instead of digitalis. We found it quite safe with dramatic results in most of our patients.
"BEFORE OUABAIN THERAPY"

CASE No 1

"AFTER OUABAIN THERAPY"

CASE No 2
CASE No 3

"BEFORE DEATH"

CASE No 4

"BEFORE DEATH"
Summery
Cardiac arrhythmias are frequent complications in acute and chronic renal failure and they may well account for sudden unexplained death in these patients. Based upon our recent study, we strongly believe that among other causative factors, focal degeneration of myocardium is the commonest and the most potentially dangerous cause of cardiac arrhythmias. We suggest in emergency instances, ouabain to be used instead of digitalis which appears to be quite safe with dramatic results in cardiac arrhythmias of these group.

Resumé
Les arythmies Cardiaques à l'uremie aigue et chronique sont relativement fréquents, et souvent l'apparition de l'arythmie nous explique les morts sultes de les malades. Sur la base de les études nous pensons que la raison la plus fréquents et la plus dangereuse de l'apparition des arythmies cardiaques chez les malades et la dégeneressance focal du myocarde et afin de traitement on choisit ouaibain qui est plus efficace par rapport à DIGITALE.

References

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LE MONGOLISME EN IRAN:

Par
Dr. Djalal Birmiani

Etude du Mongolisme en Iran:
Nous avons étudié un groupe de 14 mongoliens, examinés au Centre du Guidage Infantil à TÉHERAN se divisant en 8 garçons et 6 filles.
Les origines raciales et religieuses des parents de ces enfants sont diverses:
Christiennes dans un cas, juive dans 2 cas, musulmane pour le reste.
1.- Les facteurs liés à la périnatalité:
Nous avons présenté dans les tableaux suivants l'âge des malades et de leurs parents lors de la naissance de nos mongoliens:

a) L'âge des enfants:

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b) L'âge maternel:

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<tbody>
<tr>
<td>Nombre de cas</td>
<td>6</td>
<td>5</td>
<td>3</td>
</tr>
</tbody>
</table>

(c) Travail du Centre du Guidage Infantil, attaché à la Société Iranienne de la Protection de l' Enfance.
(oo) Chef de Clinique Neurologique à la Faculté de Médecine de Téhéran.
(oo) Les observations de ces enfants nous ont été confides grâce à l'obligance du Docteur DAFTARI, Directeur Général de la Société Nationale de la Protection de l'Enfance; du Docteur DJAFARTIAN, Directeur du Centre du Guidage Infantil, et du Docteur MANSOUR, Directeur du Centre des Observations Psychologiques, auxquels je présente tous mes remerciements.